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Integrating Gender into Environmental Research and Policy

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Integrating Gender Into Environmental Research and Policy

SUSAN JOEKES, CATHY GREEN AND MELISSA LEACH

Executive Summary

Many interventions in the environment sector have given women a role in environmental projects in the hope that this would facilitate resource conservation efforts as well as benefiting women themselves. But across a whole range of sub-sectors (forestry, soil conservation, water, rangeland management, integrated pest management etc.), outcomes have often been disappointing and sometimes even damaging to women:

- women have often been treated as, in effect, a source of cheap labour, with little consideration as to whether the project really served their interests. Frequently the demands of a project merely added to women's already overextended workload, or required them to forsake some other activity.

- in cases where women were able to resist the attempt to commandeer their labour, projects often failed as a result.

- women have usually been sidelined in the management of projects, once they come on stream, and rarely given any decision making powers (even where the project relates directly to women's social responsibilities), or responsibilities for high-level tasks in routine operations.

The approach underlying past efforts to incorporate women into projects relied on a flawed conceptualisation of gender relations, hingeing on the idea that men and women assumed gender roles that were unproblematically complementary to each other. This led policymakers to focus exclusively on women's subsistence roles, ignoring their market-related activities and the dynamic interactions of men's and women's resource management roles and responsibilities; and to view women as an untapped pool of labour whose energies could be costlessly mobilised for project activities, while in reality women's workload usually entailed diversion of effort to the project and carried an opportunity cost to them. It also tended to be assumed that participation in an environmental project would benefit women, without appreciating either that women might have no rights in the incremental resource so created, or that women's involvement with resource management might be a residual consequence of lack of access to more rewarding activities.

Recent research in many different settings has arrived at a new understanding of the links between gender relations and environmental management which carries very different policy implications. The prime requirement is the understanding that men's and women's interests in and incentives for environmental conservation may be very different, largely because women have lesser property rights than men in environmental resources. Those rights are usually insecure, being embedded within and contingent on the rights of male kin; and, slight as they may be, they risk being undermined by interventions of any kind.

- women's property rights in natural resources need to be identified at the outset and actively monitored throughout the life of a project.

- policymakers need to examine, support and build on the often little visible institutional arrangements and networks which provide channels for women to press their concerns and guard their entitlements in situations of ecological stress or environmental change.

- women must not be expected to participate in or contribute to the furtherance of resource use practices from which they themselves will not benefit. They must, at the least, be paid for any current labour contribution to a project on the same terms as men.

- local project management procedures must be designed to give real representation to women's interests.

- the need to widen people's, particularly women's, range of livelihood choices may sometimes imply a need for interventions not focused on the environment per se.

- where any charges are involved, policies need to take account of the fact that 1) women have lesser command over cash than men and that 2) where men control household expenditures, they may not give proper weight to women's interests or priorities.

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INTEGRATING GENDER INTO ENVIRONMENTAL RESEARCH AND POLICY[1]

1. INTRODUCTION: THE RELEVANCE OF GENDER TO ENVIRONMENTAL ANALYSIS

1.1 The social dimension in natural resources management

Just as political forces strongly influence resource exploitation at the national and international level, so they need to be taken in to account for understanding, and prescribing changes to, natural resource management practices at the local level:

> 'technical guidelines for solutions to environmental problems were common, but ... only rarely did such guidelines pose the political questions of who should take the relevant action, how they should do so, who should bear the cost, how effective the action of those agents may be expected to be, and what the response would be of the various social groups' (UNRISD 1994:3, citing Wolf 1980).

Since 1980, 'political questions' have received increasing attention in environmental policy formulation and in project design. In many instances, policymakers and project designers have specifically addressed gender issues as part of that effort. But the interventions have not been notably successful: indeed, they have often been counterproductive, neither improving women's command over natural resources nor assisting project effectiveness. New directions in gender analysis help explain that outcome, and can suggest ways of improving the gender sensitivity of environmental policy and programmes and ways for research to inform policy making.

The purpose of this paper is to show why gender issues are important in local natural resource management; to examine in what ways and with what effects environmental policies and programmes have attempted to incorporate concerns for women in the past; and to suggest how the situation can be improved in future.

Discrete resource management decisions are taken at the local level within broad market-based or policy-induced parameters, by enterprises (such as logging companies) or 'particular people in particular places' (Leach and Mearns 1991). But even particular people do not act as fully autonomous, atomistic individuals: the types of livelihood which they can derive and the incentives they have for managing environmental resources are mediated by social institutions, i.e. social rules of tenure, property rights and labour

[1] This publication was supported by the Environmental and Natural Resources Policy and Training (EPAT) Project funded by the U.S. Agency for International Development (USAID). Dr Nancy K. Diamond, Gender and Environment Advisor (Office of Women in Development, USAID), prepared the scope of work for the project and provided technical and editorial oversight. The views, interpretations, opinions, and any errors are those of the authors and should not be attributed to any other source.

mobilisation. It is these institutions that determine the terms of people's access to and control over resources. They make for marked differences, even within very small communities, in the abilities of different people, social groups or individuals, to use and draw benefit from environmental resources. Furthermore, actualisation of their use rights depends on the political leverage that groups or individuals can exercise in defence of nominal claims under those social rules. The sets of resources that people have command over and their ability to make use of those resources together constitute what have been called 'environmental entitlements' (Leach and Mearns 1991:10).

1.2 Gender and environmental entitlements

The social rules determining individuals' access to environmental resources are biased in terms of gender. This can be illustrated, for sub-Saharan Africa, in respect of access to land, labour and trees, resources centrally important to rural livelihoods.[2]

Gender inequality in access to **land** is widespread. Many African societies, regardless of whether they are patrilineal or matrilineal, confer only secondary, usufruct rights in descent group land to women. Women are normally entitled to cultivate land controlled by their husbands' lineages but not to alienate or inherit it (Berry 1993:116). The nature of their access is dependent on and varies with changes in their marital/kin status.

Rights in land are continually subject to reinterpretation. In the West African forest zone, for example, individuals' control over tree crop farms is challenged through appeal to kin, through the courts and through local and national political processes:

> 'In all these arenas, the outcome of conflicts over rights in tree crops farms depended on the political as well as the economic resources of the contestants and in both respects women were poorly endowed compared to men, and the odds stacked against them for winning their case' (Berry 1987:13).

That is, the political processes whereby social institutional rights are pursued, in cases of conflicting claims, are also gender biased. Box 1, although relating to a different NRM sector (water resources), shows very clearly that such political considerations are relevant in the project context: the design for project management ignored women's potential use and control rights over project resources by, in effect, vesting political control of them in men.

Entitlements in resources other than land also differ systematically by gender. Historically in Africa, **labour** has been a key factor in agrarian prosperity - since labour input adds value to land - and it is becoming more so as production is intensified and cropping patterns change (Carney 1994). Access to labour is clearly asymmetrical by gender. While men (as husbands or as fathers) commonly have rights to allocate certain amounts of women's and children's labour to crops from which the men control and retain the revenue, women have no such reciprocal rights over men's labour, though they may do with respect to children's labour. A history of labour input onto a certain piece of land can carry some weight in a

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2 Although the empirical evidence relates most comprehensively to Africa, it is certainly not limited to it: see e.g. Agarwal (1994) for an exhaustive account of gender bias in land rights in South Asia.

woman's and her children's claim to ownership rights in that land against other heirs of a deceased father or husband, but it is no guarantee (Berry 1993:117; cf. Leach 1994). Similarly, some women have been able to contest men's complete control of crop revenues on the grounds of labour input (see Dey 1981 on The Gambia, Jones 1986 on Cameroon), but there are many contrary cases of unremunerated, enforced applications of women's labour into family farm production in the context of development projects (see Huffman 1987 on Tanzania; Hangar and Morris 1973 and Kennedy 1990, both on Kenya).

Throughout sub-Saharan Africa, men's rights to **trees** and their products tend to be far stronger than women's rights. This is especially true in respect of the exchange value of trees. Men commonly have full disposal rights, while women have only use rights (e.g. for gathering fuelwood as part of their provisioning responsibilities). This has a wider significance; the planting of trees can be associated with, and confirmative of, tenure of the land on which they grow. In The Gambia, where women's labour inputs have increased with changes in the cropping pattern towards paddy rice cultivation, men are anticipating and acting against land claims which women might come to make - and would be entitled to make in consequence of their greater labour input - by planting more trees on paddy land (Carney 1994).

With reference to an experience in Western Kenya, Box 2 illustrates how tree planting projects may fail to meet objectives when local entitlements in trees are overlooked. Despite successes in increasing the local tree stock as a consequence of the project, the distribution of entitlements in tree products swung against women and woodfuel shortages emerged locally as a result. The project design overlooked the fact that although women had responsibility for fuelwood provision and gathering rights which enabled them to meet that obligation, they had no entitlement to plant trees and therefore no means of ensuring that tree species appropriate for firewood were included in the woodlot plantations.

The incentives and opportunities in environmental management and protection facing individual men and women differ with variations in their access to and control over resources. By extension, women and men often have sharply different stakes in environmental change, in general, and in specific natural resource management intervention policies in particular. Gender differences can determine, for example, whether local soil and tree resources are managed sustainably or allowed to degrade.

Attention to gender relations is essential for understanding the activities of individuals, households and community-level organisations in different natural resource management domains. It is also relevant in other policy areas. The 'value' of children can be perceived very differently among members of a given household when a rigid gender hierarchy effects environmental resource access profiles. Women and men may have very different childbearing and family size preferences in the context of environmental stress. There may be important implications for health, education and family planning policies (Dasgupta, Folke and Maler 1994; Joekes 1994).

Despite the pervasiveness of gender differentiation in access to resources, societies are not simply and strictly partitioned along gender lines. Just as it is wrong to assume homogeneity within societies or communities as a whole, it is wrong to assume uniformity amongst women. Women are usually differently positioned in relation to environmental

resources according to their age as well as to class, ethnicity and so on. Uniformity of interest and incentives with respect to particular environmental problems cannot be assured.

Moreover, as the land rights discussion above suggests, gender boundaries are not fixed with respect to resource entitlements. The entitlements of the two genders are dynamic and interactive, related to and interwoven with each other, and liable to change. As economic and social circumstances alter, so the environmental entitlement profiles of individuals and groups, which are inherently relative to each other, may change also. Sometimes this may be due to changes in world market conditions percolating down to local markets, causing the revaluation of particular resources and, by extension, of the asset position of the different genders. Sometimes changes may follow from modification of the policy context or from local environmental interventions. (Boxes 1 and 2 are illustrations of the kinds of the redistribution of entitlements that can occur.) More generally, the respective social rights and responsibilities of the two genders, extending to the environmental domain, are continually redefined to a greater or lesser extent as a means of accommodating to change in a community's social and economic circumstances (Jackson 1995; Joekes 1995).

1.3 Central elements of gender analysis

Knowledge of the relevance of social stratification in general and of gender hierarchy in particular to environmental management and protection, as described above, echoes contemporary Gender and Development (GAD) analysis. The basic thrust of this analysis is to point to the essentially political nature of gender relations. Social relations of gender are seen as dominated by men's interests and maintained, at root, coercively.

There are three main elements in the GAD approach:

- a belief in the **systemic and mutually reinforcing nature of gender disadvantage** in all aspects of social life. Gender discrimination is held to exist at all levels and in all forms of social organisation ranging from property rights to legal processes, political representation, and education and employment (see e.g. Folbre 1994 for a synthesis). The approach takes as its subject matter the interactions between the genders, the nature of their respective interests and the attempts made by each gender to defend its interests in situations of change;

- the household is seen as a **basic unit of social organisation** which, in all its culturally varied forms, combines 'togetherness' with conflict of interest. The household has been defined, in Amartya Sen's celebrated phrase, as the site of 'co-operative conflict' (Sen 1990), much of which has a gender basis. The household is seen as the lynchpin for the exercise of men's general social control over women, the 'structure that upholds the Structure (sic)' (Tapper cited in Pollak 1985). The 'conjugal contract' (Whitehead 1981) at the core of the household confers unequal strengths on the spouses, reflecting the asymmetries in the society at large in the distribution of power and property by gender. Women's interests may not be identical with those of their household if it is controlled by a male. Moreover, a large minority of households are female rather than male headed, by virtue of divorce or by the man's death or abandonment of his spouse or absence as a migrant worker.

- **distinctive social identities and roles exist for men and women** in all societies. People are separated by gender, for example, in religious observance, in dance and in their living quarters; beliefs that women are relatively weak, that their periodic impurity threatens the social order, that their meticulousness justifies their performing certain types of intricate work and so on, are widespread. Conceptions of gender appropriateness limit the activities that are considered permissible or legitimate to each gender. Gender ideologies are not static - they are modified as material circumstances and gender practices change over time - but they are biased because they serve generally to limit and constrain women's behavioural options to a greater extent than men's.

This formulation of the gender and development approach is not the 'received wisdom' among development policymakers and practitioners outside the specialist field of gender studies. Even so, it is increasingly evident in donor agencies' policy statements, and some of the constituent ideas are endorsed in project documents (as will be seen below in Chapter 2). It cannot however be said yet to have had a significant impact on field interventions. This is partly because, as a relatively new conceptual approach, detailed policy recommendations have not yet been worked out in different sectors. Donors may also have some resistance to applying the GAD approach to policy, because it raises sensitive issues to do with confronting local cultural practices.

The attempts at gender sensitive interventions which have undoubtedly occurred in the environment sector have instead been influenced by an earlier approach. This is the 'women in development' approach (WID). WID interpreted very differently the nature of the social and economic discrimination that women face in the context of development. The main characteristics of the WID approach were:

- a **focus on the gender division of labour**, which appeared to exist in all societies, and on the roles ascribed under it for women. Women typically concentrate their labour on homestead provisioning, i.e. on unpaid, 'reproductive' tasks related to the care and nurturing of other members of their household, while men devote most of their energies to larger scale, often market-related production. WID pointed to the crucial economic role played by women's labour and held that its value could be quantified in the same terms as market-based activities.[3]

- its argument that **the gender division of labour makes women peculiarly vulnerable to development policies and interventions**. Except for 'welfare' activities, interventions tend to target the male sphere (if only by default). The identification of men with monetised production activities made them convenient vehicles for aid

3 At the time the term 'sexual division of labour' was used. The GAD approach acknowledges the existence of, but stresses the fluidity of the gender division of labour, i.e. changes in its pattern in response to circumstances, rather than its absolute, fixed character. Paradoxically, GAD ascribes the gender division of labour an even more far-reaching significance than WID. The unmonetised nature of women's reproductive work does not merely lead women to be marginalised in the disbursement of development funds. It infects policymakers' perceptions of available labour supply, leading them to suppose that the existence of a large pool of unpaid female labour makes cuts in expenditure on social services feasible because the services can be costlessly provided within the household (Elson 1991).

investments, which were required to show quantifiable returns; and male monopoly of the public 'modern' sphere of administration and politics, and their primacy as citizens, by virtue of their supposed 'headship' of households, tended to lead donors and governments to direct their efforts towards men as recipients of development funds. Projects targeted at women were needed to counteract this tendency.

The WID approach pioneered awareness of the need for gender sensitivity in development and the possibility of modifying projects accordingly. It was remarkably successful in changing donor policies and practices in many sectors. Its influence was perhaps attributable partly to its conceptual simplicity, and partly to the fact that it offered some straightforward suggestions for improvements at project level at a time when development agencies, notably USAID, were formally required to take steps to incorporate women in projects wherever possible.[4] However, our examination in this paper of the outcomes of WID type policies implemented in the environment sector illustrates the limitations of WID as a model for interventions. In order to maintain the momentum for gender sensitisation of policy and programme interventions, it is important to explain why the benefits brought by these past efforts often fell short of expectations and what improvements are possible in future.

1.4 Structure of the paper

This introductory chapter has discussed the importance of including the social dimension, including understanding of gender relations, in development interventions affecting natural resource management. It has also summarised the main concepts involved in the analysis of social relations of gender and has shown how these have evolved over time, first under the WID, then under the GAD approach.

Chapter 2 describes the ways in which environmental policies and field interventions have up to now taken account of the position of women. This entails analysis of changes over time in the approach to social questions, and within that, of the attempts that have been made to incorporate gender analysis in policies and programmes in different natural resource management sectors. We cover the forestry, water resources management, rangeland management, soil conservation, integrated pest management, and urban environmental sub-sectors, and also examine cross-cutting policy approaches to legal and institutional reforms and to environmental economics policy approaches.

Chapter 3 gives an overall evaluation of these attempts to incorporate gender analysis and attempts to explain their intellectual origins. There are striking similarities across the sectors in the policy approaches that have been (and are still being) introduced. Although detailed evaluations of projects are not generally available, there is sufficient evidence to suggest that past efforts have rarely been beneficial to women, and have often actually been damaging. We attribute this outcome, not to mischievous intent or maladministration of projects, but to misunderstanding of the character of social institutions, and flaws in the conceptualisation of social relations of gender and their relation to environmental change, underlying the measures used. Those measures stemmed from the recommendations

4 The Percy Amendment required gender impact assessments to become a standard part of project appraisals and evaluations.

advanced by two schools of thought about the relation between gender and environment: the 'women as environmental managers' or women, environment and development school, and (certain strands of) ecofeminism. Both of these schools have elements in common with the WID approach. Thus the failings of attempts at gender-sensitivity in the environmental field parallel the failings of policies based on the WID approach in other development sectors.

Chapter 4 moves on to present recommendations for the future integration of gender analysis in environment research and policy. We draw on various alternative conceptualisations of gender-environment relations here, which can roughly be thought of as translations of GAD into the environment domain. Policy lessons are presented for gender sensitisation both of local level interventions at the programme and project level and of macro-level policies, especially those stemming from the application of environmental economics.

2. THE TREATMENT OF GENDER ISSUES IN STANDARD ENVIRONMENTAL POLICY AND PROGRAMME APPROACHES

2.1 Introduction

In this chapter we describe the evolution of policy and practice around environmental concerns with respect to social and gender issues. The discussion focuses on the policies and programmes of governments and major donor agencies, rather than on NGO and 'grassroots' activities, and on sub-sectors in which clear attempts have been made to adapt to the social dimension. In most cases, but not all, this has extended to consideration of gender issues.

For particular sub-sectors, the analysis deals largely with experiences at the project level rather with high level policy statements and approaches. This is partly because few high level, synthetic position statements on gender issues exist; partly because up till now, high level policies, notably those centred on economic analysis, have not exhibited any attempt at gender sensitisation; and partly because it is in local level interventions that 'policy' is made manifest. The sections on legal and institutional reforms and on environmental economics (sections 2.8 and 2.9) nevertheless address gender aspects of general macro-policies that have relevance across sub-sectors.

It will become clear that sensitisation to the gender dimension, where it is taken on at all, is almost always in a spirit of social disaggregation in a 'fine-tuning' of the social approach. That is, policies and projects are modified to reach the two main sub-groups of the population, men and women, rather than undifferentiated local populations. However, in overlooking how social relations of gender influence environmental resource use, policies have failed to match up to the difficulties of involving women in projects ostensibly designed for their benefit. Not surprisingly, projects have often fallen short in

implementation and failed to benefit women as intended, and have often in consequence also failed to meet their objectives of improved natural resource management.

2.2 Forestry

Over the last decade standard forestry sector policies have begun to lay more stress on the importance of environmental and social issues. In a departure from earlier emphasis on industrial forestry, it is now more common for forest resources to be managed with a view to sustainable resource use, conservation and biodiversity protection, and for trees and forests to be recognised as a vital source of livelihood for local peoples (Gregersen, Draper and Elz 1989). Donor funding of forestry projects over the last 15 years has switched emphasis accordingly:

> Forests have to be seen in a new light - as a valuable economic resource having multiple uses and multiple users. Consequently, the practice of forest management has to undergo a change - from tree management to ecosystem management in which people play a significant part (D'Silva and Appanah 1993).

Recent forestry policy can be considered in three overlapping parts: conservation of large blocks and reserves of natural forests or plantations, 'community' forestry, and farm forestry. First, in relation to large forest blocks or reserves, there is a move towards 'conservation with development'. This has gained the support of conservation agencies such as IUCN and WWF, multilateral donors such as the World Bank and bilateral donors such as the ODA (UK). It marks a shift away, at least in theory, from exclusionary reserve approaches which, in advancing the interests of local elites or in prioritising global concerns for biodiversity conservation, had, in effect, forced forest and forest-fringe dwellers to 'steal' from a resource base which had formerly provided them with a vital source of livelihood. This evolution of policy clearly links into the sustainable development arguments of the 1980s, which brought social and economic concerns to bear on biological conservation objectives (Leach 1994; cf. WRI/IUCN/UNEP 1992). Thus, policy documents such as the FAO's (1985) Tropical Forestry Action Plan now highlight the importance of involving rather than excluding local people in forest conservation.

The policy generally advocates protection of a core reserve area, with management plans for surrounding buffer zones focused on a varied mix of state/commercial and local livelihood interests.[5] Local-level support for reserve protection is sought by giving forest dwellers a stake in revenues generated within the reserve, perhaps through ecotourism, or by ensuring their access to locally-valued forest products, for instance in 'extractive reserves'. Local institutions may also be drawn into reserve protection, by regulating or directly policing access to particular areas or products. A first wave of integrated conservation-development projects (ICDPs) informed by the new policy has been implemented world-wide (Wells, Brandon and Hannah 1992).[6] However, the few evaluations of ICDPs that have been undertaken at this early stage tend to emphasise the

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5 In recognition of the multiple interests at play within forest zones, 'stakeholder' approaches which attempt to understand the conflicts and trade-offs between and within different groups have been developed (e.g. Grimble, Aglionby and Quan 1994).

6 E.g. the Korup National Park ICDP, Cameroon (Republic of Cameroon 1990), supported by the ODA (UK), and, in Nigeria, the Oban ICDP, Cross River State (WWF 1990).

low quality of participation engendered within the projects, whether for social, historical or administrative reasons (Wells, Brandon and Hannah 1992; Pimbert and Pretty 1994). Gender issues are rarely mentioned in this literature; it is safe to assume that they lie outside the main concerns of the approach.

It is in other areas of forestry policy that explicit attempts have been made to incorporate women. These policies are concerned, first, with smaller forest blocks, whether village and community forests or planted woodlots, and, second, with smallholdings, which may or may not lie within reserve buffer zones.

Community and joint forest management is increasingly seen as a way to build up local peoples' incentives for sustainable forestry. It has been promoted particularly in India and Nepal and in West Africa. While many such programmes continue to ignore women, focusing on an undifferentiated 'community', some women and women's groups have become a special target group and institutional focus for activities in woodlot planting, rehabilitation or protection (cf. FAO 1993). Joint Forest Management schemes in India have prioritised women's participation (Sarin 1995). Such social or community forestry projects have also highlighted the importance of secure tenure in creating incentives for planting or conservation, specifically the rights of women to land and trees, and donor policy documents now commonly echo this concern (see World Bank 1991a; FAO/SIDA 1987). Related to this is an attempt to increase women's incentives for participating in social forestry by improving their access to extension services, to technical forestry training (UNCED 1992; World Bank 1991b) and to markets for forest products. In this view, where incentives are adequate, conservation becomes a 'rational' choice for women.

These efforts represent a delayed recognition of the role of trees and forest products in the household economy, the role of women in their collection, and the specific knowledge they have developed in the process. It is certainly preferable to women's complete invisibility in forestry activities (Leach 1992). However, the focus on women seems to have an 'efficiency' rationale in the WID mould - put simply, projects benefit from women's labour input, their experience as environmental managers and their knowledge about forest products (cf. FAO 1993). Thus 'Forestry programmes that do not consciously plan for women's needs can miss significant opportunities to increase returns on forestry interventions' (World Bank 1991a: 53). Mobilising women's labour has been undertaken without due regard to the time, energy expenditure and other opportunity costs of their involvement in projects. Women's labour is viewed as malleable despite their generally inflexible work regimes. Socially obligated to contribute labour to community woodlots, for example, women have often had to switch labour away from their own crops (cf. Leach 1991), perhaps denying them a source of independent income.

Moreover, women's input into social forestry projects at higher levels, in planning or project management, has usually been minimal. Men dominate decision-making bodies and control high status activities and women's interests have often been ignored as a result. In the Joint Forest Management schemes in India, for example, there are many instances where village authorities have closed forested areas off to allow the regeneration of trees,

cutting women off from their major supply of firewood (Sarin 1995; Shah and Shah 1995).[7]

The interest in women and women's groups as the locus of forestry interventions tends to distract attention from the micro-level conflicts, bargaining and trade-offs within the household generated by gender difference. Men may obstruct individual women's rights or interests in relation to forest and tree products (cf. Shah and Shah 1995). Even where many women are *de facto* heads of households because of male outmigration, men may still retain tight control over environmental resources as migrants and women acquiesce for reasons of personal livelihood security (cf. Alaoui 1995).

The complex gender dimensions of tenure have also been overlooked in social forestry projects. The focus on titular land ownership has, for instance, obscured the fact that women often hold secondary rights to trees and tree products as land users (Rocheleau 1987a and b; Fortmann and Bruce 1992, Leach 1994). Women's often less visible rights risk being subordinated or even eradicated (Leach, Joekes and Green 1995; cf. Rocheleau 1992a; Berry 1987). For instance, community woodlots planted on areas of common property have often excluded women from gathering sites. Granting women rights to new trees has often proved a poor substitute where the new species mix (not of their choosing) has not provided the same range of products.

The latest wave of forestry policy concerns smallholder tree growing or farm forestry, with a specific emphasis on agroforestry. The farm forestry approach is individual smallholder-oriented and expected to generate greater incentives for sustainable resource use, since the products and labour inputs can be captured more directly by contributors.

Women's incentives for participating in farm forestry activities have become an overt concern of some donors. For instance, the World Bank (1991a: 81) states that successful interventions depend on 'a full appreciation of local social and cultural values, customs and traditions. These include rights to tree and forest products; gender-based distinctions in the allocation of land, labor and capital; and the complex issues of land and tree tenure'.

In practice, however, farm-level approaches continue to assume that there is a single homogeneous household with unitary interests to which the costs and benefits of forestry accrue. Agroforestry schemes have often failed where gender divisions of labour have required women to tend plants from which men alone reap the benefits (cf. Leach 1991; Rocheleau 1992b).

2.3 Soil conservation

The 'conventional' technical/engineering approach to soil conservation, dominant from the 1950s to the late 1970s, was concerned with building mechanical structures to halt soil loss and with the disbursement of monetary incentives to farmers to undertake conservation. At project level, extension services were modelled around technology transfer and farmer

[7] This is all the more ironic considering the emphasis placed by social forestry projects on firewood availability during the 1980s (Sarin 1995).

preferences and motivations for soil conservation were usually assumed rather than considered in detail (White and Jickling 1992:8).

The conventional approach has been criticised for lack of attention to the on-site benefits of conservation and for bypassing farmers' interests, knowledge, preferred techniques and social structures and institutions, including those concerned with land tenure. The gender dimensions of soil erosion problems were also neglected.

During the 1980s, labour-intensive conservation strategies, often tied to incentives such as food for work or cash, replaced the emphasis on high technology input approaches. Early participatory approaches involved farmers in the narrowest sense, as a source of labour. Specific emphasis was often placed on women's participation in these schemes, frequently through women's groups. Efforts to incorporate women were driven by a conviction that, as 'victims' of accelerating environmental degradation, women would benefit directly from conservation work. Additionally, women's labour was seen as an important but under-utilised resource for conservation activities. Women's and environmental interests were therefore seen as indistinguishable.

Although acknowledging women's roles in natural resource management, these soil conservation projects seem to have done little to improve - and often much to damage - women's material and socio-cultural well-being. Monimart (1989:14) has criticised the anti-desertification projects operating in the Sahel during the 1980s for using women's labour for low-skill, labour-intensive jobs without assuring them the benefits of their work. Women participated in these schemes for food; they faced a situation of desperate poverty caused by land shortages and growing food insecurity, male migration on a massive scale and a lack of out-migration opportunities for themselves. Similar concerns about food security drew women into soil conservation activities in Kathama, Machakos District, Kenya during a famine in 1984. In Kathama, women were also keen to ensure their place in the patron-client networks through which food aid rations were disbursed. Beyond fulfilling an immediate need for food, women argued that the location and timing of the work did not meet either their environmental or gender interests (Rocheleau 1992b).

The uptake and maintenance of conservation structures and techniques remain low in these external incentive-driven projects (White and Jickling 1992). Removal of a key incentive, such as cash or food, reveals the lack of personal incentives for environmental activities, and threatens the sustainability of these schemes. Taking note of these failures, the most recent soil conservation approaches consider it inappropriate to give farmers direct economic incentives (e.g. payments) to undertake conservation. The key impetus for farmers to conserve soil is now thought to lie in improving agricultural productivity through good land husbandry, with cost-benefit analysis (CBA) widely used as a means of identifying farmer incentives for soil conservation (Magrath and Doolette 1990; Lutz, Pagiola and Reiche 1994; de Graaff 1993).

However, this focus on farmer incentives has bypassed gender issues. CBA, for instance, commonly adopts 'the household' or 'the farmer' as the unit of analysis, ignoring gendered land relations and potentially conflicting interests within the household. Questions such as who controls or has a stake in land parcels and in specific crops are vital for understanding individuals' incentives for soil conservation. Women's rights to land and natural resources

tend to be closely tied to and subordinate to others' rights (Rocheleau 1992a) and they may have little incentive to undertake soil conservation when the benefits of their work do not accrue to them directly. Moreover, women's rights to trees and crops grown in landscape niches, often beyond or adjacent to field boundaries, can be wiped out by terracing structures and other conservation technologies.

Many soil conservation projects are now undertaken within watersheds where physical boundaries, as defined by the flow of water, are used to analyse the interaction of biophysical processes with resource use (Dixon and Easter 1991; Working Group on Watershed Management and Development 1988). They represent a shift towards a more integrated approach to NRM.

At the project level, the trend is now towards local management of interventions and outputs, the usefulness of indigenous technical knowledge for adapting low-cost, low-input techniques to suit specific agricultural 'parcels' (White and Jickling 1992; World Bank 1992; Belshaw, Blaikie and Stocking 1991). Some donors such as SIDA now recognise the importance of institutional factors in soil conservation: 'In order for development co-operation to affect people's land management practises it must engage the structures and institutions that determine the context in which land users make their management decisions' (SIDA 1993:6).

However, with few exceptions these integrated farmer-centred perspectives remain remarkably silent about gender issues. In the OXFAM-funded soil and water conservation project in Yatenga, Burkina Faso, (Projet Agro-Forestier), construction of stone bunds to increase soil moisture content drew heavily on the labour input of local women. They were responsible, under prevailing divisions of labour, for stone gathering and headloading. A 1992 evaluation found that almost 50 per cent of the women interviewed thought that their labour burden had increased, without compensatory measures being taken to lessen their work burdens in other areas. Women's input into bund construction also drew their labour away from income-generating activities (Atampugre 1993). This suggests that incorporating indigenous knowledge and practice - including women's expertise - into soil and water conservation is no guarantee that women will benefit, unless the terms of their participation in a project are also addressed.

2.4 Water resources management

The large-scale technology-driven projects that have consumed the major part of donor funding for irrigation schemes have come under increasing scrutiny because of their poor performance on efficiency, productivity and equity grounds (Lenton 1992). Small-scale participatory projects that draw on the experiences of indigenous community-managed irrigation systems are now considered to be a more sustainable option (Vincent 1990; Yoder 1994). Policy interventions in large scale irrigation have almost invariably ignored women's productive activities as agriculturalists and as users of irrigation systems and have therefore often disregarded them as a target audience.

The International Drinking Water and Sanitation Decade (1981-1990) marked a change in emphasis from the large to the small scale in approaches to water supply and sanitation

(WSS). Over the decade there was a shift away from top-down, technically oriented provision towards decentralised community-based approaches reliant on local-level management, maintenance and, in some instances, financing of water services. The USAID Water and Sanitation for Health Project (WASH), which provides technical assistance to USAID missions on the design and implementation of WSS projects has moved in this direction. The effectiveness and sustainability of services are now considered higher priorities than unqualified technology transfer and meeting of coverage targets (Baden 1993).

The policy focus on decentralisation and user participation implies a need for increased sensitivity to local conditions and priorities. Systematic attempts to incorporate women into community-based WSS projects have been made, with women's groups as an institutional focus for mobilising them. Women's multiple roles as providers of domestic water, as managers of water at community level and as guardians of family health give donors a clear rationale for integrating women into water sector initiatives (cf. Rodda 1993). The sector is viewed as having multiple beneficial spin-offs - according to the World Bank (1992) improvements in water supply and sanitation provision are 'win-win' policies - and therefore an area in which women's roles cannot be ignored. The PROWWESS (Promotion of the Role of Women in Water and Environmental Sanitation Services) project was set up by UNDP to promote the involvement of women in the sector. Some of its literature has even gone so far as to claim that water and sanitation are a 'women's sector' (e.g. INSTRAW/PROWWESS 1989). This view is also adopted by NGOs such as the African Water Network, which, in its promotion of sustainable water development in Africa, notes that it 'intends to achieve this by increasing the participation of women at every level of water development projects' (cited in Rodda 1991:104).

There is a clear efficiency rationale behind this focus on women. The World Bank's thinking on women and water is explicit in the claim that 'Women who are trained to manage and maintain community water systems often perform better than men because they are less likely to migrate, more accustomed to voluntary work, and better entrusted to administer funds honestly' (World Bank 1992:113).

Project-level experience with involving women in WSS projects is now considerable, and many donors and research institutes have developed guidelines and checklists to guide good practice on integrating women into projects (Baden 1993). Even so, shortcomings of the approach are evident. WSS policies and projects have tended to assume that women's participation will, of itself, advance their interests. The term 'participatory' covers a wide range of applications, from projects premised on labour utilisation to those concerned with community financing of services to those that attempt complete community control over interventions. The nature of women's input within WSS projects has varied markedly as a result and is not always of benefit to them, as the example in Box 1 suggests.

Donor assumptions of the complementarity of gender roles at the local level have denied intra-community divisions: the problems of working through community-level social institutions that reflect and reproduce gender hierarchies are often not recognised in the policy literature (see Box 1). 'Consultation with community organisations' generally signifies consultation with men, whether as community leaders or heads of households (Baden 1993:5). Gender hierarchies can often limit the quality of women's participation on

water committees by muting their expression of interests in public or by limiting their ability to take on responsible official duties. Even where attempts have been made to draw women into village water supply management, their involvement is restricted. Three women who sat on a village council in Hyderabad, India, only attended water supply management meetings when summoned by male elders (IRC 1992 cited in Baden 1993:19). Women tend to be allocated tasks perceived as an extension of their 'traditional' responsibilities, even if donors propose alternative approaches. In consequence, water supply projects have often drawn on women's labour, without any provision to increase their technical or managerial skills. This low level of participation has often contributed to project failure,[8] for instance, where men are trained in well or pump maintenance but are unaware of breakages because their daily routines do not take them near water supply equipment, women may have to use other, perhaps more reliable, but less healthy, sources of water. This compromises both health and water supply objectives. Low quality participation can also lead to gender-specific preferences relating to water quality, quantity, reliability or 'willingness to pay' for water services being overlooked within local-level making processes.

Donor interest has turned recently to integrated water resources management (IWRM). In this approach water is conceptualised as a finite and valuable resource which requires careful management. Conservation and the reallocation of existing supplies have replaced the previous emphasis on supply extension. Cost recovery is key to the approach and applies to both WSS and irrigation sectors. Use of the pricing mechanism is more developed in this sector than in any other. The pricing of water resources is assumed to give users an incentive to pursue efficient utilisation; users of water for low value purposes will be induced to limit demand, thereby freeing up supply for high value uses (e.g. domestic supplies in urban areas).

Rigorous assessment of the economic costs and benefits of water resource development could lead to better recognition of the economic value of women's work in water collection and management (Whittington, Mu and Roche 1990; Kamminga 1991). Nevertheless, the water pricing argument adopts the 'household' as the unit of analysis, leaving potential conflicts of interest and preference within the household unexamined. Opinions as to what constitutes a high value use for water, for instance, are likely to differ by gender. With pricing, poorer individuals (including women in households) may be unable to use water for small-scale income-generating activities or could face reduced returns on these activities. The use of water for non-marketable purposes or in the production of low-value crops (i.e. crops for own consumption) may also be vulnerable to the imposition of water charges: pressures which would deprive some women of a vital source of independent income, while constraining the ability of others to fulfil their familial obligations.

In response to the current policy emphasis on pricing, a body of literature on willingness to pay for water services has emerged. This research suggests that while the income elasticity of demand for improved water supplies is low, the price elasticity is high i.e. costly water

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8 However, some projects have overcome the gender stereotyping of women in WSS projects. Two projects in Casamance, southern Senegal, implemented by the International Service for the Support of Training and Technologies in West Africa/Sahel (AFOTEC), for instance, successfully trained some women in the maintenance of La Malienne hand pumps (Green with Baden 1994b), as did the SIDA supported Dodota Project in Ethiopia (Baden 1993).

connections and charges have a significant deterrent effect on take-up and use. A study by the World Bank Water Demand Research Team (1993) found instances where women were willing to pay for improved services. However, they were unable to commit financial resources due to constraints on their ability to influence household decision making. It is not surprising, therefore, to find that rates of recovery have proved to be unexpectedly low in some cost-recovery schemes (Baden 1993). The problem is most acute where affordability studies had focused solely on men's incomes, and responsibility for meeting the costs of water services had later been transferred to women. There is an obvious danger, however, that if water is priced differently to make it affordable to women, all the cost will be shifted onto women and no pressures will be in place to modify men's expenditure priorities to cover optimal levels of household water consumption.

2.5 Rangeland management

The view that traditional pastoral production causes environmental degradation through overgrazing was widespread among donor agencies and governments until recently. Accordingly, 'ranch' models were, until the early 1980s, the main form of intervention supported by donor agencies within dryland Africa. Rights to pockets of government-owned land were written over to individuals or collectives and large investments were made in fencing, improving water supplies and exotic breeds. But ranches usually failed to meet productivity targets and there was little improvement in the sustainability of rangeland resource use (Horowitz and Jowkar 1992:50).

In the 1980s, large donors shifted their support to range development and/or livestock projects. These provided technical services, and, although still based on conventional theories of range ecology, which claim to be able to identify a given area's stock carrying capacity, focused on the management of communal rangeland (Scoones 1994). Infrastructural developments such as roads, water points and markets were prioritised; projects focused on forage production, commercial dairy and meat production and the provision of veterinary services to producer groups. Again, these projects have largely performed below expectations (Glenn 1988).

Both types of range management projects have ignored gender issues and have inadvertently discriminated against women in the process. Ranch schemes, in particular, made no provision for women to gain legal title to land, and in many circumstances disenfranchised women from the complex use rights to land and resources that they had held under customary tenure arrangements. Likewise, rangeland development/livestock projects have been largely blind to the extent of women's input into pastoral production and marketing and to the multiple claims on their time and labour.

Systematic study of the roles of women in pastoral economies - mainly from an anthropological perspective - is very recent. Even then, there are wide geographical gaps in research (e.g. neglect of Central Asia (see Pointing and Joekes 1991).[9] This research

[9] Research projects such as PALD (Policy Alternatives for Livestock Development) are beginning to generate some literature on the role of women within Mongolian pastoralist systems (see Cooper and Gelezhamtsin

vacuum has contributed to the persistence of certain misplaced assumptions about pastoral societies among policymakers: first, that pastoral societies are generally egalitarian and second, contradictorily, that patriarchal social structures seclude and thus marginalise women from key productive tasks (Jowkar *et al* 1991). Project benefits are naively expected to 'trickle across' to women.

Although the gender relations of pastoral production differ between socio-cultural, economic, political and ecological contexts, it is clear that women's contributions are generally far greater than has been assumed. A focus on households as the unit of intervention, and on men as household heads, owners of livestock, and managers of herds and range resources, has invisibilised women's roles in pastoral production. Women's key tasks of milking, processing and marketing dairy products, their management of small stock, care of young and sick cattle, and their interaction with natural resources in the fulfilment of these and other domestic roles, are peripheral to the concerns of rangeland development policy. That women's contributions to family enterprises may far exceed both their rights to resources and the benefits accruing to them is not generally considered. Moreover, with male out-migration as a common response to the encroachment of rangeland by sedentary agriculturalists, and to the creation of large irrigation schemes and wildlife reserves, the burden of pastoral production and rangeland management has fallen increasingly to women, who often lack the resources needed to maintain production and sustainable resource use practices (Horowitz and Jowkar 1992). For example, labour shortages may force reductions in herd size or lead to the over-exploitation of grazing areas closest to homesteads.

The livestock emphasis on commercial meat production has also tended to transfer animals and animal products out of women's control. Although in many pastoralist systems women do not inherit livestock, they have been able to lay varying claims to some animals and/or their milk in the event of marriage or childbirth (Horowitz and Jowkar 1992). Some women purchase additional livestock using income derived from their dairying activities. But in the new projects, milk is used exclusively for cattle fattening and the income generated usually accrues to men. Some studies have shown that men tend to sell women's cattle before their own (e.g. Ensminger 1984). In short, in ignoring the social relations of gender and how they shape resource management, livestock schemes have generally created more work for women, particularly in the care of calves, while at the same time reducing their access to income from their activities.

Shifts in understanding of rangeland ecology in recent years away from the crude 'carrying capacity' approach are beginning to reshape policy approaches. Arid and semi-arid lands are now known to exhibit non-equilibrium dynamics, where biomass production is extremely variable, spatially and over time, as a result of the extreme variability of rainfall coupled with periodic drought (Scoones 1994). Risk avoidance strategies such as manipulation of herd size, livelihood diversification, opportunistic herd movements, and preservation of grazing and water point rights, are now seen as key components of an efficient pastoralist livelihood strategy.

1993). PALD is implemented by the Institute of Development Studies, UK and the Institute of Agricultural Economics, Ulaanbaatar, Mongolia.

The idea that the common property resource management arrangements pursued by pastoralists are inherently inefficient (Lane and Moorehead 1994; Hutchison 1991) is also being reconsidered. It is now thought that collective social arrangements have contributed to effective rangeland resource use in the past, but have now come under intensified internal and external pressures. Support of new pastoral associations which can take on responsibility for and manage key services is now a central policy focus of some donor agencies. For instance, GTZ is undertaking innovative pilot schemes in the Sahel and the World Bank is funding local pastoral organisations (Scoones 1994).

Yet the new rangeland ecology remains relatively blind to gender issues and is very much premised on views of undifferentiated NRM communities, begging questions about who will benefit from devolution of control over range resources to the local level. The World Bank-funded projects in the Sahel illustrate well how gender-blind policy can exclude women from quality participation. Excluded from the design and functioning of pastoral associations, women's sole input in Mali, for example, was to provide food for association meetings (Shanmugaratnam *et al* 1992:51). Such exclusion is likely to result in the continuing invisibility of women's resource rights within customary tenure systems. For instance, where water points have been privatised or their management turned over to pastoral associations there may be clashes of interest over different uses of water, especially in times of scarcity when livestock watering may be unduly prioritised over domestic requirements. Women may also have weak incentives for undertaking range-enhancing tasks such as tree planting or conservation because the benefits of their management accrue mainly to men through livestock.

2.6 Integrated pest management

Integrated pest management (IPM) is of relatively recent interest to donors. It has been widely touted as a way of halting the 'pesticide treadmill' where ever-increasing levels of chemicals are applied to crops to prevent pest build-up. IPM technology is expected to have significant cross-sectoral spin-offs - for maintaining soil and water quality, and contributing to a more sustainable and affordable agriculture (World Bank 1992). Involving a combination of (usually) non-chemical pest control techniques adapted to suit specific farming systems, IPM has been defined as:

> 'an approach which combines different pest control techniques and integrates them into the overall farming system. It relies on host plant resistance, biological control and cultural practices, with pesticides introduced only when these non-chemical control methods fail to maintain pest populations below economically damaging levels' (Kiss and Meerman 1991: iii).

In practice, the term 'integrated' applies more to the combinations of techniques useful for controlling pest problems in complex ecologies, rather than being indicative of interdisciplinarity or social integration. The bulk of IPM policy literature concentrates principally on technical and economic issues. While IPM has the potential for recognising the specific pest management needs of individual farmers, the policy literature appears to make few real concessions to the detailed consultations with farmers needed to match IPM technology with diverse user needs. Gender issues are assumed away behind 'sociological'

factors which are themselves poorly conceptualised. The IPM policy literature makes remarkably few references to women (Malena 1994), yet it could be argued that it is especially urgent to improve gender policy in this sector.

With few exceptions, women in the South have been poorly served by extension and agricultural credit services through which pesticides and related training have been channelled. Productive agricultural inputs such as pesticides have primarily been controlled by male farmers. IPM approaches replicate these biases by assuming the male farmer or the undifferentiated household to be the main target audience for new technologies. This shows a profound lack of understanding of relations of production within farming systems, where in many instances, women, to a greater extent than men, allot more time to pest management activities through ascribed tasks such as weeding and planting. In this respect, IPM appears to have bypassed the findings of two decades of gender-focused farming systems research (Feldstein, Flora and Poats 1989).

Subsistence farming systems require easily disseminated and low cost IPM techniques. Low-income women farmers require IPM technologies using few purchased inputs, requiring a low labour and time outlay, and appropriate to multiple crop combinations and patchy cropping patterns. IPM techniques requiring high labour inputs such as pest scouting or manual removal of eggs are simply not plausible where women, already over-stretched by their multiple activities, are expected to undertake the task, and where access to cash income for hiring scouts is constrained. IPM techniques such as timely planting and harvesting of crops to circumvent pest build-ups are similarly likely to prove incompatible with women's generally inflexible work regimes comprising repetitive and time-constricted tasks such as cooking and childcare.

Evidence suggests various other ways in which IPM can founder if gendered resource priorities are obscured. Pest control techniques which require stubble burning may be unacceptable if women use crop residues for livestock feed, fuel and so on. Likewise, the promotion of pest-resistant crop varieties under IPM is likely to overlook the fact that choices made about crop varieties reflect a range of gender-differentiated preferences based on taste, ease of cooking, grain storage, yields, biomass production from non-edible crop components and so on. Pest resistant varieties may be unacceptable if they do not satisfy these other needs.

Gender differentials in land rights will also affect the uptake of IPM technologies. Where women are allocated small plots for cultivation and hold land rights which are contingent on male kin, the insecurity of their tenure and their lack of control over agricultural produce revenues may affect their expectations of returns to investment from IPM technology adoption and influence the rate of uptake.

As a knowledge-intensive form of intervention, IPM assumes that technological information can be divulged unproblematically through extension services. However, this ignores the fact that women have been systematically excluded from these and information may not be passed laterally through households, as assumed. IPM is also an area where valuable attempts have been made to work with rural people's own knowledge of pests and pest management. In this, gender differences in experience have rarely been taken into account, despite their crucial overall importance in contexts where pest management

knowledge is highly specific to crops, land types or seasonal activities associated with men's or women's work.

Moreover, IPM exemplifies an area where the concepts and frameworks used by farmers to understand or describe ecological phenomena may not match up with those of western science. In the African context, many researchers have concluded that farmers are ignorant of different types of crop disease and therefore have no management strategies for dealing with the issue. However, 'farmers can understand crop sickness and influence it without explaining this in terms of disease...farmers, whose knowledge of the pathosystem is subsumed into a broader understanding of plant-soil-water relations, manage the conditions in which the disease occurs' (Fairhead 1992: 9-10). The concept of 'ignorance' has another dimension in the context of gender relations. Women may be labelled as 'ignorant' of certain pests, diseases, or control technologies by men within a community as a means of re-asserting gender hierarchy.

2.7 Urban environmental management

To date, urban environmental problems have received far less donor attention than those of rural areas (Atkinson 1994: 98). This is now changing. Donors have dramatically stepped up support for urban 'brown agendas' and a profusion of high-profile programmes have been established to look into ways of improving urban environmental planning and management.[10] In 1993 World Bank funding for urban environmental management projects surpassed that for 'green' development issues (World Bank 1993b: 27).[11]

Urban environmental problems differ qualitatively from those of rural areas. Key differences are that the day to day activities of the urban poor generally have less impact on the environment than in rural areas;[12] and processes of urban environmental degradation affect health more immediately than income (Leach and Mearns 1991: 26).[13]

Rapid urbanization and population growth in many third world cities have outpaced the provision of basic environmental services and infrastructure. Environmental regulations, where they exist, have proved inadequate for dealing with growing problems of urban pollution. As a result, urban populations suffer exposure to a range of environmental pollutants, such as industrial wastes, toxic chemicals, air pollution and biological pollutants derived from inadequate water, sanitation and drainage services (Hardoy, Mitlin and Satterthwaite 1992: 204).

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10 For example, the UNDP/UNCHS/World Bank Urban Management Programme; UNCHS Sustainable Cities Programme; WHO Healthy Cities Programme; UNDP/World Bank Metropolitan Environmental Improvement Programme which is focused on Kathmandu, Metro Manila, Colombo, Beijing, Bombay and Jakarta (Bartone *et al* 1994: 5).

11 The financial proportions reflect scope for much larger infrastructure projects in urban environments (e.g. sewerage), rather than a larger number of discrete interventions.

12 Two exceptions are when urban industry involves the poor as workers in environmentally damaging behaviour or where urban populations degrade rural resources such as forests beyond the urban boundary.

13 Because of the dependence of many urban poor on biomass fuels collected from rural hinterlands, however, 'green' environmental issues are also relevant in the urban context (Leach and Mearns 1991).

Other environmental problems in urban centres include overcrowded housing, dwellings built on environmentally hazardous (dumps, floodplains, steep slopes) or ecologically fragile sites, noise pollution and road congestion (Bartone *et al* 1994). Low income groups tend to bear the major brunt of urban environmental problems (Leach and Mearns 1991). They are more likely to be located in polluted and hazardous areas, to reside in overcrowded dwellings and to have less secure housing tenure, and thus to lack incentives for investment in buildings and in the land and services surrounding them (Bartone *et al* 1994). Low-income women are particularly vulnerable because of their close interaction with contaminated water sources and their responsibility for household sanitation and waste disposal.

Urban environmental management issues are complex in that they

> 'often involve more than one environmental medium, economic sector and administrative jurisdiction; institutions, policies and problems are not synchronised; and municipal capacity can seriously affect environmental quality' (Leitmann 1994: 126).

Nevertheless, most policy literature on the urban environment is sectorally-focused and concerned mainly with site-by-site solutions to specific technical problems. The sectoral bias in analysis and planning has proved ill-suited for dealing with complex and multifaceted environmental problems. In particular, social concerns have proved to be a fundamental determinant of the acceptability of environmental services.

Although the research literature on gender/environment issues in the urban context is patchy - gender analysis of 'brown agenda' issues lags far behind that of 'green' natural resource management concerns - sectoral analyses of water, housing and land demonstrate a very high level of involvement of women in activities consistent with their household obligations. While the literature dwells on the effects of urban environmental degradation on women's roles as resource users (Bell 1991; cf. Sontheimer 1991; Dankelman and Davidson 1988), gendered patterns of resource preferences, access and control, community participation and labour mobilisation are as relevant to urban environmental policy as to other NRM sectors.

Gender-specific preferences relating to the location of standpipes, the cost, quality, reliability of water, the location or timing of waste disposal services etc. have rarely been taken into consideration (Hardoy, Mitlin and Satterthwaite 1992: 215). Recent attempts by the Government of Bangladesh to expand public latrine provision in slum and peri-urban areas have been criticised for failing to take into account women's concerns for security and modesty. Public latrines were sited in a way which did not allow women to stay in seclusion, as required under prevailing cultural norms (Baden *et al* 1994).

Recent policy emphasis on 'sustainable cities' stresses the linkages between environment, health, poverty and economic productivity, and suggests a shift towards a more integrated approach to the urban environment. Urban environmental problems are increasingly seen as

issues of service provision rather than of intrinsic natural resource scarcities,[14] and conceptualised as problems of governance. As such, they require legal, administrative and institutional solutions (Hardoy, Mitlin and Satterthwaite 1992: 205).

Donor investments are now being directed at institutional capacity-building of municipal and other local authorities to improve service coverage, delivery and management within city-specific environmental planning and management action plans (Bartone *et al* 1994). Other areas of assistance include support to NGOs and other community organisations to mobilise public support for and participation in environmental improvement programmes, and an emphasis on cost-recovery from improved facilities with service users expected to pay for their resource use via charges, fees or taxes. This approach is authenticated by extensive research into willingness to pay for refuse, water and sewerage services which suggests that such services are highly valued by both low and high income groups (Coolidge, Porter and Zhang 1993).

The new policy emphasis on building partnerships between government authorities and urban residents shows a sensitivity to the need for local identification of problems and solutions. Yet, as in other environmental policy sectors, there is little attempt to disaggregate by gender.

The majority of environmental improvement initiatives at community level have been stimulated from the bottom up by community groups who have put pressure on local authorities to act on problems (Hardoy and Satterthwaite 1989). In Bangkok, for example, many low-income communities have taken over environmental management by organising periodic neighbourhood clean-up campaigns and regular waste collection services (Atkinson 1994:174). Local schemes for environmental improvement often draw heavily on the labour input of 'volunteer' women because these activities are seen to extend logically from their existing responsibilities.

A study of a low-income community in Guayaquil, Equador, showed that NGOs rather than municipal authorities were the main providers of environmental, education and health services to the area following public expenditure cutbacks in 1983. To ensure service delivery local women had to devote unpaid labour to the projects, in some cases forcing elder daughters to pick up the responsibility for the reproductive tasks their mothers no longer had time to undertake, with negative effects on their school attendance (Moser 1992). The new policy focus on community environmental management needs to be aware of the risk that using women's labour has such negative effects.

Housing tenure is central to the urban environmental management issue. Residents of squatter and slum settlements often face a continual threat of eviction which lessens incentives for investment in infrastructure and services. Lack of housing or land rights often restricts access to credit which could be used for housing and other environmental improvements. Donors are beginning to tackle this issue. Granting of secure land tenure to slum occupants in Solo, Indonesia resulted in significant investments in housing, environmental services such as water supply, waste disposal and sanitation (Bartone *et al*

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14 For example, illegal squatter settlements are often located in environmentally precarious locations, not because of land scarcities elsewhere, but because residents lack access to other more appropriate sites.

1994: 61). Equality of tenure rights is especially important where households are under female headship. Secure housing tenure may also be particularly important for women who work at home in income-generating activities.

2.8 Legal and institutional reforms

Various legal and institutional reforms with intended environmental outcomes are currently being promoted by donors. Themes which have cross-cut the environmental sub-sectors include land tenure reform, administrative decentralisation and local institutional capacity building.

The attention to tenure issues has arisen primarily out of the economic analysis of environmental problems (see below, section 2.9). The prominence of the other themes can, in part, be similarly attributed to the concern to improve incentives and therefore sustainability; but it can also be seen as an attempt to address implementation failures in the past and as a response to a broader 'good governance' agenda now being pursued by donors.

Administrative decentralisation for environmental management - often as part of broader reforms in governance - is expected to improve cost recovery and to create cost savings in service administration. The emphasis on cost recovery may have unfortunate consequences in this context. There may be costs for women where jobs previously undertaken by waged men are transferred to women at the local level and undertaken on a 'voluntary' basis. That women do undertake these jobs is a reflection of 'the male dominance of public office, the presence of women's groups facilitating the mobilisation of women, and the realisation by women that if they fail to do such work, it remains undone' (Jackson 1993b:1951).

Policies for administrative decentralisation also include a concern for upgrading the skills of local staff. Sometimes, as in the water sector, for example, it is stated that female staff should participate equally with men in training (as in World Bank 1993a). While this offers an excellent opportunity for sensitising staff at all levels to gender issues in resource management, and for developing more gender attuned extension services and participatory approaches, much of the policy literature emphasizes the need for highly technical training to the exclusion of these other skills, forgoing an opportunity to support the development of expertise for shifting towards more 'people-centred' and gender sensitive development.

Governments and donors have also turned their attention to the reform of tenure arrangements, both rural (concerning land, water and other resources) and urban. Policymakers appear to agree that insecure rights over land and resources are antithetical to sustainable resource management. But they disagree over how to tackle the issue. Some donors and governments favour privatisation, in the belief that indigenous systems - where non-exclusive and often non-codified rights prevail - are thought to invoke less conservation-minded behaviour because of their apparent insecurity. Others are beginning to argue that customary tenure arrangements can be effective and efficient and that these rights should also be clarified, as in current policies for rangeland management.

To date, most attempts to privatise land have focused almost exclusively on men as 'heads of households' - women have seldom gained legal title. Customary tenure arrangements have, however, often continued to function in instances where individual titling has occurred, resulting in confusing and often ambiguous dual systems. However, as suggested in section 2.2, there is evidence that this lack of clarity has sometimes been a means for women to extend such contingent rights as they can lay claim to.

With their exclusive focus on land ownership, land titling policies have tended to overlook the access and use rights of landusers. This carries a gender bias where women have relatively greater usufruct than disposal rights in resources. Neither do land titling policies recognise the extended livelihood aspects of tenure. Not all resource management activities are undertaken for immediate individual short-term gain (Lane and Moorehead 1994: 7). For example, where rights are contingent on others' rights, as tends to be the case for women, resource management practices may be part of a social strategy aimed at cultivating relationships which can be turned to in times of future need (Rocheleau 1995).

Some donors and governments are now beginning to recognise the importance of working within customary tenurial arrangements. In Papua New Guinea, for instance, the government has recognised that customary communal land tenure actually provides more effective land rights than would a privatised system. Families hold indefinite rights to farm a plot of land, but clans control sales of land. Communal tenure confers entitlements over a specific piece of land to a range of individuals, who all have a stake in ensuring its sustainable use (Markandya 1994:265).

Institutional capacity building policies fit into a growing consensus, post-UNCED, that the implementation of sustainable development should be based on local-level solutions derived from community initiatives (Holmberg 1992; Holmberg *et al* 1993). These are based on the view that strengthened or rejuvenated local institutions can be a useful vehicle for using and building up local capacity to deal with natural resource management problems, mediating and resolving conflicts between different interest groups, for building consensus over natural resource management, and mobilising community backing for tenurial arrangements.

However, as argued in the introductory chapter, and illustrated in Box 1, it cannot be assumed that gender equitable arrangements will be promoted by local institutions. Local institutions are microcosms of community-wide social and gender differentiation, not a new, gender-unbiased type of organisation. Locally evolved rules about resource use tend to reflect the interests of dominant parties and, as recent experience with Joint Forest Management schemes in India has shown (Sarin, 1995), women's less visible rights of access to natural resources are often obliterated by decisions made within these hierarchical bodies. Ironically, then, devolution of control over land and property to the local level can have the effect of excluding women from their rights of access to natural resources for the first time.

'Gestion des terroirs' ('land management') approaches to local natural resource management, popular among NGOs and government agencies operating in Sahelian West Africa, have been similarly insensitive to socio-economic differentiation (Painter 1991), whether by gender, class, or seniority. While aiming to strengthen local institutional

capacity for responding to specific local environmental conditions, they have ignored important differences in resource use, control, knowledge and preferences. Local institutions have tended to become dominated by local elites who have taken on new community roles in such projects as a means of promoting their own interests.

The focus on the institutional dimensions of NRM is a useful step towards incorporating social concerns. However, it does not of itself guarantee that gender issues will be recognised and adequately addressed within environmental policy. A sole focus on traditional NRM organisations at the expense of the more complex and often less visible social institutional arrangements which operate in parallel, which shape gender/environment interactions, and which may be important in promoting women's interests, may undermine policy objectives.

2.9 Environmental economics policy approaches

The economic approach to environmental policy has swept into prominence with recognition of the need for general principles for resource management and protection. The distinctive appeal of economics, in this as in other areas of policy, is that it supplies a universal, synthesising technique for valuing resources and prioritising conservation measures across sub-sectors, indeed across all resources (factors of production as well as natural resources). Resources are valued in monetary terms at any point in time and values can also be compared across time by application of the discount rate.

Economic analysis often contributes new diagnostic insights into the nature and causes of environmental problems[15] and suggests new types of policy approaches at both macro and micro-levels. The analysis - and the ensuing policy prescriptions - centres on the nature of markets in environmental goods and services and the terms on which economic actors participate in those markets. Environmental problems (over-depletion and absence of environmental protection) are explained in terms of market failures; deficient incentives for economic actors to take appropriate action; and deficient information relayed to those actors about the environmental consequences of their actions.[16]

Deficient incentives are held to be caused by lack, or uncertainty in the enforceability of, property or tenurial rights in resources. This leads persons (or economic entities such as corporations) with access to a resource to undervalue its future productivity, because they perceive that they may derive no future benefit from it. As a result, resources are extracted at an over- optimal rate and/or the costs necessary to ensure future productivity of the resource are not committed. The general economic policy prescription is for the clarification and effective enforcement of property rights to remove uncertainty.

Improper or distorted resource prices, giving incorrect information or signals to economic agents, can arise for different reasons. Most commonly they arise through market

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15 For example, recent economic analysis of water supply problems, conceptualising the issues in market terms, was a real breakthrough which moved policy away from an engineering-driven approach.

16 Work continues on technical refinement of certain analytical techniques (notably, alternative methods of pricing resources, deciding on the discount rate and adjusting the national accounts), but the central canon of environmental economics is now well established.

imperfection or outright market failure. Market imperfections of various kinds are endemic in the environmental field, for several reasons. **Externalities** or 'spillover' effects are frequent; they occur in situations where the consequences of an economic transaction (e.g. a production process) impinge on some other person or economic agent(s) and are not captured through market prices. **Public goods** exist when access to a particular resource (e.g. clear air, public forests) is in principle or in practice unrestrainable and no physical exclusion of use is possible, making pricing irrelevant. Finally, there are plenty of cases of complete **absence of any market**, leading to zero pricing of a resource. This situation occurs most commonly because a heavy subsidy is in place e.g. freely distributed water from irrigation schemes (Lycette 1995). Unlike the cases of externalities and public goods, this situation can in principle be quite simply remedied.

Thus, in relation to environmental management at the local level, economic analysis suggests three types of policy measure: clarification of property rights; intervention directly by governments or in support of collective action at the local level; and pricing or cost-recovery policies.

In the **reform of property rights** environmental economists tend to favour privatisation of property rights as against institutions of collective ownership or control, partly as a matter of neo-liberal ideology, partly because economics research has suggested that there is an evolutionary path towards private title, associated with more efficient management in situations of resource scarcity, notably land (Pearce and Warford 1993). However, some environmental economists are beginning to acknowledge that property rights take myriad forms and that privatisation of rights is not always appropriate or desirable. Property rights therefore need not be consolidated only in terms of individual title; there is a potential role, for example, for community-level institutions (see section 2.8) (Markandya 1994).

Environmental economics does not presently admit the gender dimension. If it were to do so, it would surely interpret women's weaker property rights as highly relevant to understanding women's motives and interests in resource management. More generally, the GAD approach (and the related emerging school of feminist economics more broadly), shows far more awareness than mainstream environmental economics has done hitherto of the complexity of the concept and actuality of property rights (cf. Folbre's (1994) analysis of women's property rights within marriage). Chapter 1 shows that one of the main intellectual contributions of the GAD approach has been to elaborate these ideas in the environmental domain. To match this understanding, policymakers need to have a sophisticated understanding of the relevance and reality of different types of rights in environmental resources, and to support women's access to and control of resources under the aegis of different types of social institutions. Furthermore, GAD analysis warns that reliance on formal improvements in women's rights under one type of institution alone (e.g. the juridical system) may not carry over into rights in other institutional domains, and thus risks being made null and void in practice.

Economic analysis advocates **direct action by governments or in support of collective action at the local level**, as appropriate, to counteract environmental externalities and the existence of public goods. This underlies current policy interest in governments' and municipal authorities' use of policy instruments in relation to pollution, for example; and it

also helps explain the current interest, even at central policy levels, in community participation for NRM and environmental protection.

As discussed, the GAD approach leads to appreciation of the gender blindness of current community management approaches, and of the gender biases in projects which can result. Naive reliance on community participation is not the solution where collective NRM is indicated. Community institutions express and reinforce gender hierarchy no less than other systems of authority. To rely on community participation may be virtually to give official approval to the subordination of women's rights in access to new project-provided environmental resources; it may even facilitate the undermining or removal of women's pre-existing rights, providing a means of annulling the rights available to them in other social institutional domains.

Pricing or cost-recovery policies are advocated as the policy instrument that can be used to compensate for distortions of market prices where the proper functioning of a market is not intrinsically problematic (e.g. in the water sector). The issue is not as simple however as full withdrawal of subsidy. Implementation of the measure depends on estimates of supply costs and, more significantly in this context, users' ability to pay.

Calculation of prices uses the concept of household income, diverting attention from the fact that women's specific ability to pay - highly relevant in many spheres of natural resource use - is often less than men's. This comes about for several reasons. First, where women have independent earned incomes these will in most situations tend to be lower than men's, because of women's lesser command over resources (property, capital, credit, education) and the relatively high transactions costs they incur[17] for most of their market operations.[18] Second, where women have expenditure discretion over part of household income, they will tend to have a lower than proportional share of the budget; household income is rarely completely pooled or equitably shared among household members (Dwyer and Bruce 1988), despite the assumption to the contrary in the neo-classical economics model of the household. Third, where male heads of household make expenditures on behalf of the whole household, they often give much greater weight to their own (and other males') consumption preferences than to those of females.

In the formulation of cost recovery pricing policies, women's limited ability to exercise their expenditure preferences needs to be recognised. This is especially significant in respect of water (and woodfuel) resources, where women have household provisioning responsibilities. Where women's ability and men's willingness to pay are less than assumed in aggregate project estimates of demand, project revenue forecasts may prove overoptimistic, and threaten project sustainability. If women do nevertheless act on their sense of household priorities and purchase the resource, it would be by diverting resources from other expenditures over which they do have some discretion (school fees and medical treatment are typical examples (see e.g. Dwyer and Bruce 1988). Thus there may be unanticipated, indirect, negative effects of resource pricing in other areas of household survival and standard of living.

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17 Largely attributable to the time and mobility constraints set on women by their domestic responsibilities.
18 Feminist economists see women's low incomes as a major factor in explaining why women concur in the perpetuation of household forms embodying an inequitable relational contract.

3 EVALUATION OF PAST EXPERIENCES AND THEIR INTELLECTUAL ORIGINS

3.1 Assumptions about gender issues in past environmental policy and programme approaches

Chapter 2 has examined and analysed how far mainstream environmental policies in a number of sectors have incorporated the social and gender dimensions of environmental management. It made clear that there has been growing cross-sectoral policy concern with local level participation and farmer-centred approaches. This trend is indicative of significant sensitization to social issues.

The analysis also showed how some areas of policy have systematically attempted to incorporate women, which attests to efforts to fine-tune policy in women's favour. Nevertheless, this concern is partial: parallel strands of policy within single sectors continue to say very different things about gender issues.

In the forestry sector, recent conservation-with-development policies for the management of large forest areas have focused on an undisaggregated 'community', while women have been drawn into social forestry schemes on a massive scale. In water sector policies, while women and women's groups have become a central focus of water supply and sanitation issues, the irrigation sector has continued to target interventions mainly at male farmers in their role as 'household heads' and as productive users of water. Other areas of environmental policy, particularly rangeland management and integrated pest management, have remained almost entirely blind to the significance of gender relations. Comprehensive analysis of the significance of gender relations at the intra and inter-sectoral levels is therefore clearly lacking.

Neither is there, overall, much evidence of a chronological progression from less to more gender aware. Indeed, some of the areas of most recent donor interest - IPM, conservation-with-development policies, sustainable cities policies - all mistakenly assume a homogeneity of gender interests at community level and a correspondence between participation and benefit concerning women's involvement in project activities.

Where environment sector interventions have tried to take account of gender issues they have consistently been based on a particular vision of social life, positing parallel - and virtually unconnected - male and female worlds of work, economic activity and interactions with the environment. This orientation is closely allied with the WID model of gender and development described in Chapter 1.

The tell-tale signs are that policies:

- focus exclusively on women's current, mainly sustenance, roles;
- focus on identifying women's roles without any consideration of dynamic interactions with men's roles;
- view women as efficient resource managers and as an untapped pool of labour;

- assume that participation within a NRM project will of itself benefit women; and
- present all women as the same, assuming a homogeneity of interest by virtue of their sex.

3.2 Women, environment and development

The analysis of links between gender and environmental issues on which actual policies and programme interventions have drawn is elaborated in a large, specialist 'gender and environment' literature, which has grown up over the past twenty years. This literature encompasses many disparate strands. The 'women, environment and development' (WED) approach was the first to highlight women as having a special relationship with the environment. Women were described as the main 'users' and 'managers' of natural resources at the local level (cf. Dankelman and Davidson 1988; Rodda 1991 for an exposition of the approach).

Like the WID approach, the starting point for WED is the gender division of labour. WED points out that women's work involves them closely with the environment and its resources. Typically it is women within a community who are hewers of fuelwood and haulers of water, and who play a major, though often unacknowledged part, as cultivators. Women's responsibilities make them closely dependent on, and give them distinct interests in, natural resources, especially those which provide food and fuel. Women are also acknowledged to have deep and extensive knowledge of natural resources, deriving mainly from their intimate daily experience of them. By extension, it is argued that women's interests lie in sustainable environmental management and resource conservation; women's interests are thus identical to, or at least complementary with, those of environmental programmes and projects.

As with WID itself, in WED there is an almost complete focus on women, and a virtual exclusion of men and of men's resource related activities from the picture (cf. Munyakho 1985; Martin-Brown, Ofosu-Amaah and Philleo 1992). Furthermore, no attention is given to differences among women, which might be associated with other social stratifiers such as age and class; women tend to be treated unproblematically as a single, cohesive social group.

The emphases of WED discussions have shifted over time. In the early 1980s WED approaches commonly portrayed women as the primary victims of environmental degradation, bearing the brunt of pollution and deforestation and the major responsibility for coping with shocks such as drought. This was epitomised in powerful images of women struggling to find food and fuel in degrading land and treescapes. Natural resource degradation was seen as undermining women's ability to perform their sustenance roles, and as imposing increasing costs on their time and energy. In the late 1980s women came to be seen less as "victims" and more as efficient environmental managers and conservers of natural resources, pointing to evidence that women were heavily engaged world-wide, according to the terms of local agro-ecological practices, in environmental protection and

rehabilitation: building conservation terraces, planting trees, and dealing with seeds and wild plants to safeguard biodiversity, for instance.

Notwithstanding - perhaps even because of - its conceptual simplifications, WED produces clear guiding principles for policy: women are to be incorporated fully into programme activities. This is to ensure both that women benefit directly from environmental projects, and that projects are not undermined by the exclusion of women, who are the primary environmental resource management agents. Women's groups are often proposed as the appropriate vehicle for 'community' environmental action.

WED prescriptions have been taken on board in the environmental policies of many NGOs and donor agencies. The World Bank's 'synergistic' approach to environment and gender, arguing for a general identity of interest between women and environmental resources and thus for treating women as the best (most expert) agents for ensuring resource conservation, is the most comprehensive statement of the rationale for the approach (cf. Jackson 1993a). WED assumptions have also been assimilated into the literature on the community-based approach to sustainable development known as primary environmental care (PEC),[19] which is widely advocated by NGOs and donors (Oxfam *et al* 1992; DGCS 1990). Women are conceptualised as the pivot around which the central planks of PEC - caring for the environment, meeting basic needs and community empowerment - rotate, because of their knowledge of and experience with environmental management (Davidson, Myers and Chakraborty 1992:151).

The practical application of the WED approach typically requires of policymakers and project designers:

- **knowledge of the environmentally related tasks carried out by women** under the gender division of labour, so as to 'bring women in' to project activities, mobilising the extra resources of women's labour, skill, and knowledge;

- **the delivery of project and programme resources to the 'right people'**, i.e. those (men or women as appropriate) currently engaged in a particular activity and benefiting from it; and

- the **inclusion of women in the implementation of environmental projects** in NRM sectors in which women are heavily involved, commonly through women's groups.

The WED approach should be credited with pioneering a coherent, if flawed, model of social differentiation, and with inspiring interest for the first time in the position of women, and the implications for policy and projects, among environmental policymakers. Nevertheless, the narrowness of the WED prescriptions has often had disappointing and, in some cases, even damaging results. Despite efforts to include women, many projects have not, in the event, benefited women, or have not ensured the conditions for women's participation, to the detriment of project performance.

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19 PEC has been defined as 'a process by which local groups or communities organise themselves with varying degrees of outside support so as to apply their skills and knowledge to the care of natural resources and environment while satisfying livelihood needs' (Pretty and Guijt 1992:22).

3.3 Ecofeminism

Ecofeminism[20] is an approach based on the notion that women are especially 'close to nature' in a spiritual or conceptual sense. Philosophically, ecofeminism is associated with 'ecocentric' strands of radical environmentalism, such as deep ecology. Although largely of Northern origin, ecofeminism has an increasingly vocal international presence - for example through the work of the Indian writer Vandana Shiva (1988).

Ecofeminism extends to a general critique of conventional approaches to and definitions of development. The dominant model of development is perceived as a male construct (Mies and Shiva 1993). Ecofeminism shares in the post-modern feminist critique of scientific knowledge in general and of the applied sciences in 'mainstream' development in particular (cf. Merchant 1989). Economic development is argued to have been harmful both to women and to the environment by trampling alternative, local knowledge, especially women's knowledge, associated with organic conceptions of people and nature as interconnected; by disregarding the spiritual and sacred in people's attitude to their environment and women's special role therein; and by overriding holistic and harmonious environmental practices. Economic development of this kind is similar to and goes along with the social subordination of women. Both processes suppress the 'feminine principle' (cf. Shiva 1988). Nevertheless ecofeminists consider that the feminine principle is not quite extinct in the environmental context, but still manifest in a residual, near instinctual wisdom which some women have been able to retain in the face of developmental pressures. In the ecofeminist view, therefore, hope for environmentally-sustainable and gender-egalitarian development lies in the recovery of the feminine principle. Although the full import of this claim is not spelled out, one prescription is that 'third world women' must be seen as the last bastion of feminine environmental wisdom and as providing the key to its retrieval.

Ecofeminist arguments are, like those of the WED approach, heightened by the lack of reference to men. In Shiva's (1988) work, for instance, any reference to men tends to be subsumed within references to 'peasants' or 'tribes'. There is another similarity with the WED approach in ecofeminists' emphasises on the importance to social survival of women's environment-related 'sustenance' or 'survival' activities, related to everyday provisioning of water and fuelwood, gathering and producing food. These subsistence activities, and the non-monetised, 'reproductive' sphere in general, are ascribed high spiritual value. Women, as environmental nurturers and caregivers, are seen to have interests and values that are intimately linked with and serve to promote environmental conservation.[21]

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20 Ecofeminism is a multi-faceted school of thought and the brevity of our account fails to do justice to the many particular positions within it. Nevertheless we hope to capture its philosophical essence here, sufficient to clarify the general type of policy prescriptions to which it has given rise.

21 Movements such as the Chipko (tree-hugging) movement in India, or 'Greenbelt' tree-planting in Kenya, have been portrayed as feminine environmental movements in support of this perspective. This position has, it should be noted, been strongly criticised on cross-cultural and historical grounds (Leach 1994; Jackson 1993b; Leach and Green 1995).

Ecofeminism has appealed to a large popular international audience, and represents the views of many environmentalist movements, in both North and South, in respect of gender issues. Echoes of ecofeminist discourse are contained in many donor and NGO documents as preambular justification for special women's projects. It also colours the Miami declaration adopted by a large international conference of women activists prior to the Earth Summit at Rio.

In terms of policy recommendations,[22] the practical thrust of the ecofeminist approach is similar to that of WED:

- policy-makers should identify **women as allies** - indeed as the prime or even only movers - in resource conservation projects. The strong inference is that separate, women-only projects are the only legitimate and effective form of intervention. However, no concrete recommendations are put forward for the design and implementation of such projects: the only prescription is that activities should be directed at women.

- as in the WED approach, the prescription is a general one: **'women' are portrayed as a homogeneous group**, with no suggestion made that particular women might have to be targeted over and above others in local environmental interventions.

- **'women's groups'** are seen again as **appropriate vehicles** for environmental conservation activities.

These prescriptions are of limited value to policymakers and project designers. Where they have been adopted in spirit, the actual measures that have been derived to implement the approach are identical to those recommended by the WED approach: targeting of projects to women, either in their entirety or by way of a special component and their 'incorporation' in project activities. The limited and sometimes counterproductive outcomes discussed above have been the consequence.

3.4 Typical outcomes at field level

There have been three main types of failure of WED and ecofeminist-inspired development interventions:

- project **'success' has often been secured at women's expense**, by appropriating women's labour, unremunerated, in activities which prove not to meet their own needs or whose benefits they do not control. New 'environment' chores have been added to women's already long list of caring roles. Women have sometimes been treated, in

22 Some ecofeminist thought is antithetical to any kind of development programmes, in a logical extension of the view that they are inherently and incorrigibly damaging to the environment and masculinist in orientation. An alternative model for development is sometimes advanced, which values subsistence, harmony with nature, disengagement from international capitalism and world trade, regional or national self-sufficiency in food etc., and community and family institutions (Mies and Shiva 1993).

effect, as a source of cheap labour for environmental projects.[23] The tasks women are given to do are often low status without any technical or managerial content; it is assumed that women as resource users have the incentive to do the work, whereas the situation is often that work schedules are badly designed and women lack the authority within the project context to modify procedures for the better (see Box 2).

- **community management approaches,** and use of women's groups in that context, **can act against women's interests**. Women typically have a small political presence in community councils. This can actually serve to worsen instead of improve women's position, when new project resources are allocated by such councils to men, and when councils formalise access and use rights and down play and squeeze out women's traditional resource use rights in the process.

- **project efforts to include women do not always materialise**. Women often resist activities which are not in their interests. For instance, they can refuse to tend trees which they perceive as men's or to take on new project related tasks where this would force them to neglect others.

- **a focus on women's groups,** overlooking differences among women, has often marginalised the interests and concerns of some (e.g. poor) women, often not well represented in such organisations.

Finally, the poor performance of WED and ecofeminist-inspired project interventions may be especially unfortunate in another way. WED and ecofeminism may have stoked up expectations that women, as environmental managers, have the ability to 'fix' environmental problems. The failure of environment sector projects that have attempted to address gender issues to deliver such a result may lead to disillusionment among policymakers in their attempts to take account of gender concerns. It is important that failure of project attempts so far is understood to be due to limitations in the prescriptions that have been on offer from advocates of the WED and ecofeminist schools, and to unrealistic expectations. More analytically sophisticated and realistic policy prescriptions are required.

The following chapter attempts to delineate such a menu of recommendations for gender sensitivity in environmental research and policy, drawing on alternative approaches to gender relations and environmental change.

23 Chapter 3 demonstrates that this is an extremely common consequence of supposedly 'gender sensitive' interventions.

4. INTEGRATING GENDER ANALYSIS INTO ENVIRONMENTAL RESEARCH AND POLICY

4.1 Gender relations and environmental management

In this chapter we present suggestions for improving attention to gender issues in environmental policymaking and programme and project interventions. First we explain what gaps need to be filled to flesh out the limited model of gender and environment interactions developed under the WED and ecofeminist approaches, on which policy and interventions have been dependent so far. Then we lay out an agenda for research and indicate types of policy changes and interventions that are needed in future.

The first point on which to take issue with the earlier approaches is to challenge the assumption, in both WED and ecofeminism, that women, *a priori*, have a 'special' relationship with the environment. Women's (and men's) relations with the environment emerge from the social context of gender relations rather than from any biological or spiritual affinity. This is not an abstruse theoretical point; it has policy implications.

If certain women are 'closely involved' with natural resources, this may reflect gender-divided roles and lack of any other economic opportunity, rather than any inherent caring relationship: for instance, women may gather tree food products from communally managed land partly because they lack access to income from trees on private holdings (cf. Agarwal 1991; Rocheleau 1988). In this respect, women's involvement in Chipko, perhaps the most widely quoted example of an apparent 'feminist' environmental movement, can be represented quite differently: not as evidence of women's closeness to nature but as their struggle for material resources in the context of gender-ascribed natural resource dependence and women's lack of opportunities to out-migrate (Jain 1984; Peritore 1992).

Moreover, women may, because they are locked into environmental resource dependence and deprived of access to other more lucrative activities, have little fundamental incentive for environmental sustainability or improvement. Their preference may be to move into other areas of production, as they see men do. This amounts to a fundamental challenge to the WED assertion that women's and environmental interests are inherently complementary.

The 'specialness' or otherwise of women's environmental knowledge is also open to debate. Some authors (e.g. Thomas-Slayter and Rocheleau 1994; Cornwall, Guijt and Welbourn 1994) pay particular attention to rural people's knowledge and discourses about environmental change. Their position differs from ecofeminism, not in denying the specificity of women's knowledge, but in acknowledging that men also have particular expertise.[24] Men's and women's knowledge may be divided by particular place (ecozone, land use type), plant and animal species, particular natural resource or animal products, or particular stages of production (cf. Rocheleau 1995). Men's and women's expertise can be

24 These authors add, from a feminist perspective, to other critiques (e.g. Scoones and Thompson 1994) of populist environmentalism, which errs in portraying indigenous environmental knowledge as ahistorical and apolitical.

separate or interlocking, and subject to change and assimilation - for example, certain women need to acquire men's expertise as they move into new tasks, and *vice versa* (Rocheleau 1991).

By extension, gender differentials in agro-ecological expertise, where they exist, are seen to be related to experience derived from the gender division of labour, not to any inherent, biological difference between men and women. Expressed differences of ecological opinion may also relate to resource control. For example, a husband and wife in Bwisha, eastern Zaire, disagreed about the potential of cassava to suppress the weed *Digitaria abysinica*. The woman argued that it could, while the man disagreed. The woman was attempting to strengthen her case for growing cassava, a crop she would then control, while her husband was resisting her claim to independence (Fairhead 1992: 3).

A second major area of concern is that, while differences of interest (in exploitation and/or management of natural resources) between women and men are established, there is little concern to explore possible differences among sub-groups of men and sub-groups of women (of different ages, status etc.). Such differences do exist and can be strongly relevant to resource management practices and incentives. For example, older women may not be concerned with fuelwood supplies if they are able to devolve responsibility for collecting it onto younger women (cf. Jackson 1995) and some women with fewer household duties may be able to pursue economic opportunities not immediately dependent on local resources (Hassan, Warner and Kydd 1995).

Furthermore, it is not only activities, but also relations of tenure and property, control over resources, products, and decision-making which shape people's environmental interests and opportunities. Power relations and bargaining processes within social institutions, such as marriage, affect resource use decisions. Women's environmentally related rights and responsibilities are almost always contingent on such kin and household arrangements. In consequence, women's resource position varies amongst individuals according to their social position.

Resource access, use and control are subject to external shocks, such as changes in the market value of a particular resource. And changes in the environment impact on gender relations; for example ecological degradation can alter the gender distribution of resources. Changes in macro-economic policies, infrastructural development or market conditions may alter the incentives for local resource users to produce or extract different products and so can have a profound effect on local environmental management, and on women's and men's involvement in it. Exogenous changes may thus lead to local gender tensions or conflicts in resource use. Historical analysis of the links between environmental resource use practices in particular locations, with special reference to the gender dimension, and the wider geographical and social setting can illuminate the causes and consequences of environmental change. Bringing into the analysis changes in local beliefs and socially ascribed roles and responsibilities of women and men (i.e. considering the interplay between the material and cultural bases of social organisation) can also be revealing (Rocheleau 1991, 1995; Fortmann and Nabane 1993; Mackenzie 1991; Leach 1992, 1994; Schmink and Wood 1987).

An implication of this concern with the macro-context is that women's relation to the environment is based in a 'livelihood choice' perspective in which resource-based activities are seen as only one part. This is consistent with standard economic analysis, but contrary to the beliefs of many environmental (certainly eco-centric) approaches. It also has clear policy implications. In some circumstances, sustainable environmental management may be best achieved by ensuring the availability of alternative income and employment, *in situ* or elsewhere, to reduce people's dependence on environmental resources (and their need to degrade them in some situations). Likewise, progressive change for women may, in some circumstances, imply enhanced involvement in labour markets or trade.[25]

4.2 Recommendations for research

Much research needs to be done to confirm this broad based model of the links between gender relations and environment management, even though it incorporates many well-supported ideas about the nature of gender relations and the bases of community livelihoods in society at large. Pictures of site-specific resource management relations need to be built up in all their complexity, including but not limited to the gender dimension, both through case studies and thematically. For instance:

1) **Case studies of people-environment interactions** are needed for different cultures, ecological zones and economic settings round the world (Leach and Mearns 1991). Such case studies need to address the hypothesis that different social groups have different property rights in natural resources, and different possibilities of improving their position through manipulating social rules of resource access and control. This leads social groups to pursue different interests in environmental management in the face of local and exogenous changes affecting resource management possibilities. The groups need to be defined precisely, according to their possibilities of resource access and control: 'women' will not appear as a category, although 'unmarried, young women' (for example) may.

   The research also needs to be contextualised by macro-level analysis of broader processes (demographic, environmental, socio-economic, political) and donor environmental and economic policies. Studies need to interpret the environmental management practices of various social groups as part of an overall 'livelihood strategy', as regards both the material basis of their survival and prosperity and their social positioning. Where longitudinal research is possible, or historical data are

25 This section draws on the contributions of two distinct but overlapping approaches within what may broadly be thought of as the application of the GAD approach to the environmental sphere. While they both share the core ideas, 'feminist environmentalism' tends to stress the material aspects of the gender and environment link (Agarwal 1991; Rocheleau 1988, Jackson 1995) and 'feminist political ecology' draws more attention to the nature of women's knowledge, the link between cultural and resource use practices, and the importance of the macro-context (Thomas-Slater and Rocheleau 1994; Cornwall, Guijt and Welbourn 1994; Rocheleau 1991; Fortmann and Nabane 1993; Leach 1994). The fact that some authors are cited here as exemplars of both approaches indicates how closely allied the two schools are - alternatively that the more recent school (feminist political ecology) may prove to be the later incarnation of feminist environmentalism, as ideas evolve in this very new field. Braidotti *et al* (1994) give the best extended treatment of all the different approaches in the large literature on gender and environment; Leach, Joekes and Green (1995) is a summary discussion, contrasting the main strands in the debate.

available, a picture of changes and adaptations over the long term in any given community can be drawn up.

More broadly, case study research needs to be aware of the two-way relationship between gender relations and environmental change. Gender relations affect the way that environments are used and managed, and thereby influence ecological change over time; while environmental processes, including shocks, influence management capabilities and shape resource use strategies.

Thematic research is also clearly needed. Careful selection of comparative sites (across cultures and across ecological zones) can help indicate the generality or otherwise of particular aspects of environmental practices. Work along the following lines should be fruitful:

2) **Divisions of labour, responsibility and knowledge**: Differences in responsibilities, in labour and work routines, and their time, energy, health and status implications need to be identified. This can be by gender, but, in recognition of other forms of social structuring, also by class, stage of life cycle, seniority within the household, religion etc. But analysis of differences in activities cannot be used as a proxy for research into the ideological and cultural meanings behind such activity: activities need to be situated in terms of property rights, access to and control over own or others' labour, and scope for independent decision-making. There is also a need to situate people's perceptions of environmental problems: the socially-differentiated knowledge that conditions resource use may be rooted in socio-political concerns such as resource struggles, as well as in actual differences of experience.

3) **Property rights**: The implications of gender differences in property relations for natural resource management incentives and opportunities, and the impact of tenurial reform on gender/environment relationships, require micro-level research. In this, it is important to move beyond legalistic frameworks for understanding these rights and to direct research at the less visible rights held by women, and the social processes through which these are upheld. In certain contexts, significant gaps exist between customary and statutory tenurial frameworks; these gaps may sometimes be exploited by women to their advantage. The strategies used by women in these circumstances often reveal much about the intersection between gender relations and environmental decision-making and this constitutes an important area of research. More generally, research into ways of broadening incentives through different forms of tenurial arrangements is also required.

4) **Institutions**: Property rights issues are linked with the broader question of institutions. Current environmental policy has tended to adopt a narrow definition of local institutions as equivalent to **organisations** (whether pre-existing, rejuvenated or new). This has excluded the other, less visible, institutional arrangements - understood as regularized patterns of behaviour - that affect resource use. Research is required into how positioning in households, communities and other institutions influences decision making around resource use and management. For instance, anthropological research has shown the scope that some women have for bargaining over responsibilities and for modifying expectations within the conjugal contract,

perhaps even managing to avoid altogether duties allocated under the gender division of labour. Focusing on environmental relations constituted through marriage also raises interesting questions about women who are *de jure* or *de facto* husbandless. Yet research is needed into ways of strengthening women's bargaining capabilities within a multiplicity of social institutions, not just those of marriage. The value of women's groups - hitherto conceptualised within environmental policy in instrumental terms (i.e. as a useful medium through which women can be mobilised for environmental action) - lies in the manifold ways in which they have attempted to strengthen women's bargaining power, and, in some instances, protect the networks and channels through which women guard their entitlements in instances of ecological stress or environmental change. However, these too are not a panacea - women's organisations as much as male dominated organisations can bear hierarchical structures. The variety of indigenous institutions that better assert the interests of muted groups within heterogeneous communities need to be identified and strengthened,[26] recognising that these may take on diverse forms, and be issue, age, class or ethnically as well as gender-based.

5) **Community organisations:** The gender biases in community organisations and other forms of governance at the local level are a theme that warrants specific research. Studies of Indian local forest management are a graphic example of how such biases play out and how resource allocation decisions are made against women's interests (Sarin 1995). Many more such studies are needed to investigate how widespread this problem may be in different settings. The surge of interest in community management approaches needs to be informed by understanding of how the politics of gender relations are manifested at this level, and modified as necessary to ensure that women's interests are met.

6) **Experience with resource pricing policies**: As with community management approaches, use of pricing is becoming more widespread in different environment sub-sectors with the removal of subsidies, changes in trade and exchange rate policy and attempts at cost recovery in new projects. Research to investigate whether the problems in the use of pricing instruments that a gender analysis suggests may have arisen have actually materialised is urgently needed. As suggested, unanticipated negative welfare effects are hypothesised, as well as shortfalls in revenue raising against expectations, as a consequence of gender asymmetries in the distribution of income, expenditure priorities and effective demand. Site-specific comparative research is needed to gain information on gendered differences in spending powers and to suggest how cost recovery policies might take account of them.

It is appropriate here to make some comments on **research methods**. It is important in this connection to use both long term and short term investigative techniques. In many cases, classical, inevitably lengthy, feminist and ethnographic research methods, must be used to obtain the kind of detail needed on property rights, intra-household negotiations and so on. But participatory approaches such as PRA can also be useful in some respects. For instance, resource and social network mapping and decision flow diagrams for different age

26 For example, in the case of the Mende in the Gola forest area, eastern Sierra Leone, it has been argued that distributional issues related to 'shares' in forest reserves could be tackled more equitably by involving a variety of local institutions including women's *osusu* (savings groups) and initiation associations (Leach 1994).

and gender groups are a uniquely valuable way of generating information on access and to control of resources (including cash) and on property rights; institutional diagrams illuminate the social institutions through which individuals attain and can attempt to enforce rights in resources; daily and seasonal time charts give information on the gender division of labour; and interviews of male village elders and elderly women about changes they have seen in their lifetimes are the basis for building up longitudinal data on changes in environmental practices in relation to changes in the macro-context, cultural beliefs about gender roles, etc. (see Slocum *et al.* (1995) for a practical guide on the use of participatory techniques in the field).

For research purposes, participatory information gathering exercises need to build in plenty of time for thorough analysis and interpretation of their findings, especially when linked in with the policy process.[27] The terms on which information is collected from respondents needs to be made clear at the outset, so that ethical problems of raising false expectations of extra resource provision are not present (as they tend to be in the project context).

The potential for PRA to give voice to women's views in the community has been largely unexplored till recently. Its information gathering techniques can be used to solicit women's views, bypassing the problem of male dominance of data collection - as other social processes - at the community level (see Slocum *et al.* 1995). But up to now much PRA has been only superficially gender sensitive in this respect (Mosse 1994). Deep issues of the muting of women's views and women's alienation from public discourse (including PRA exercises themselves) are not fully acknowledged. Such ingrained features can scarcely be wiped away by villagers' short-lived interaction with PRA practioners (although it is possible that women's views can be solicited more fully in a research than in the project context).[28] Nor is there any evaluation of how far actual project interventions have been modified to include women's priorities for resource allocation in cases where women's views have been articulated. PRA is generally vulnerable to the charge of romanticism in overlooking the force and persistence of political hierarchies at the local level. PRA has certainly not up to now paid much attention to the problems of supporting the bargaining power of women locally (as that of other subordinated groups) whether in groups or as individuals, beyond the period of initiation and appraisal of a project.[29] For example, the possibility of selective membership of women's groups by class, and the political marginalisation of women's groups in relation to other community organisations, tend to be glossed over. All in all, PRA as yet relies on little more than moral persuasion for seeing that gender equitable resource allocations of project resources are put into effect.

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27 An innovative recent World Bank project ('The Morocco Experiment'), which used participatory techniques to demonstrate women's development priorities, carried out extensive participatory exercises among groups of women in both rural and urban locations, but greatly underestimated the amount of time that would be needed for the analysis of the information so collected. As a result, the findings have not been disseminated and cannot be used as an input for policy formulation and programme design except at the most superficial and casual level.

28 It is notable that, in a departure from the normal extremely brief timescale for PRA work, Slocum *et al.* (1995) report several PRA exercises with women which last over weeks or years.

29 Although during PRA consultations, groups of women have sometimes been given the opportunity collectively to define and defend their position in bargaining sessions with groups of men concerning e.g. species mix in new forestry or food crop project activities.

Moreover, where participatory research findings are to be used (by researchers themselves in an advisory capacity or prospectively by policymakers) to inform policies embodying hard resource allocation decisions, guidelines for balancing qualitative and quantitative research techniques in the field need to be developed. First, even without any change in the repertoire of participatory techniques, there is considerable scope for making the findings more accessible and acceptable to policymakers as well as serving as a 'conscientisation' tool for those participating in the research.[30] Many participatory exercises do collect numerical data; the presentation and interpretation of those data in more conventional formats could often be improved. Second, the statistical reliability, and therefore generalisability or wider significance, of village level findings needs to be established, wherever possible, and lessons derived for NRM policy. One procedure which might be used more widely is to begin research projects with open-ended participatory exercises, as a means of identifying local issues, then following this up with some quantitative survey work, among statistically representative samples, to establish orders of magnitude and the incidence of particular problems among the population as a whole, at district or regional level (for an example, see Mahmood, Danish and Hussein 1992).

4.3 Recommendations for policy

Our analysis has indicated many areas where mistakes must be avoided, as well as where positive initiatives taken, if gender issues are to be properly addressed in policy and programme interventions:

1) The strategic goal of gender-sensitive environmental interventions is to protect or improve women's access to and control over resources, with a view to supporting their bargaining position within the household and community. Inasmuch as a project (if properly designed) injects extra resources into a community, women must be given command over those new resources to at least the same degree as they have command over resources in other environmental domains. **It is incumbent on policymakers and on designers and implementers of development interventions to ensure that interventions do not deprive women of command over resources either absolutely or relatively to men.** In cases where a project is dedicated to men's activities and necessarily amplifies men's environmental entitlements, the gender inequitable consequences of this must be recognised and compensation made to women so as not to worsen their overall position.[31] The full range of resource redistributive effects of environmental interventions must be considered, concerning resource access and control, decision-making in environmental management procedures, and so on. Local objections to interventions that attempt to be equitable in this sense should not be tolerated, whether they are framed in 'cultural' or other

30 Proponents of the PRA school have from the beginning devoted much effort to ensuring that information on their methods and field experiences is easily available (e.g. **RRA Notes**, a newsletter published by the International Institute for Environment and Development, London); less effort has been put into analysing specific findings and relating them to pre-existing literature on particular themes (e.g. on property rights or social institutions) or showing how they modify understanding of the relevant issues derived from other disciplines.

31 The mirror image of this need not apply, i.e. some interventions can legitimately be directed towards women, on the grounds that they are disadvantaged in access to resources in the pre-project situation.

terms: no programme or project should worsen the position of any already disadvantaged social group.

2) The centrality of the concept of tenure in economic analysis of resource management has alerted policymakers to cases where **property rights** are ill-defined or to situations where certain socio-economic groups currently lack such rights. But the understanding of property rights is normally too simplistic. It ignores layers of contingent rights, most commonly associated with women, which underlie formal arrangements. There is a need to broaden frameworks of analysis and to foster a deeper appreciation of what property rights are in practice. Furthermore, policymakers need to be aware that environmental interventions may affect property regimes. **Women's property rights need to be understood at the outset of and actively monitored throughout the life of a project.** As above, policies and programmes must not discriminate against women either in terms of formalisation of new property rights or in terms of (however unwitting) obliteration of pre-existing 'informal' rights.

3) By extension, policy needs to take into account that **men's and women's interests in and incentives for environmental resource management differ in many situations**. In the project context, a 'land user approach' - rather than a gender division of labour or gender roles approach - can be used to identify particular resource users and analyse their specific incentives and constraints, and the nature of their environmental knowledge, in order for their interests and capabilities in environmental management to be understood (cf. Rocheleau 1987a and b).

Another fruitful way of identifying and analysing how gender relations relate to environmental management is to enquire into men and women's - and sub-groups of each gender - understanding of what constitutes 'environmental degradation' or 'sustainable development'. They will often differ in their opinion; and so also will their estimations of what can and/or needs to be done to put improvements in place. Attempting to understand why the differences arise can be a useful technique, in the project context, for delineating gender differences in environmental and other resource access and control arrangements and understanding material and social constraints on women's time and labour. People-centred approaches and those which pay attention to local knowledge and perceptions are likely to grow in importance in the future.

4) Women's less visible property rights in environmental resources are upheld by an array of social institutions and through various political mechanisms. Once these are identified in the field, means of strengthening or broadening them can be more readily discerned. An emphasis on strengthening and supporting women's organisations may often be correct, but in addition **policymakers need to examine, support and build on the often less visible institutional arrangements and networks which provide channels for particular women to press their concerns and guard their entitlements** in situations of ecological stress or environmental change. In particular contexts, support for different local organisational bases or coalitions may be more appropriate than purely gender-based associations such as

women's groups if particular groups of women are to benefit from an intervention: age, class, ethnicity, place or issue-based groups may be more effective.

5) There is a fallacy in assuming that women's participation in project activities is coterminous with benefit: **women must not be expected to participate in or contribute to the furtherance of resource use practices from which they themselves will not benefit.** Clearly women's 'participation' in the sense of devoting labour, unremunerated, to project activities is wrong, in view of the opportunity costs of women's time. **Women must be paid for any labour contribution they make to a project on the same terms as men.** Given the normal features of intra-household income distribution, women must not be expected to benefit proportionally, in a 'trickle down' effect, from diverting their labour into project activities, even if household incomes as a whole are expected to increase as a result of the project activities. In the worst case scenario, diversion of women's labour effort without remuneration may reduce their access to own-account income. Nor must women be drawn in to do extra work on top of their obligations, if it exacerbates the gender asymmetry in total hours of work.

6) With respect to 'participation' in project management, what matters is the terms of such participation. Policymakers need to be aware of the power relations underlying participation in this sense of project governance, and the likelihood that participatory management arrangements will prove, no less than other local organisations, to exhibit gender hierarchy and downplay women's interests. Women are likely to be marginalised in any decision making body with significant resource allocation powers. **Local project management procedures must be designed to give full representation to women's interests.** In many situations it may not be possible to challenge male decision making powers directly. Nevertheless, there is some scope for constitutional intricacies to be exploited in committee procedures to ensure that women have real decision making powers over matters that concern them. Some ingenuity will be required, but effective solutions are possible: for instance, sub-committees or task forces, with female membership, can be empowered by a Village Council chairman to make recommendations on matters affecting women's interests, yet preserve his formal authority (Slocum *et al.* 1995:80). Research into this area may reveal other such possibilities.

7) **The need to widen people's, particularly women's, range of livelihood choices may sometimes imply a need for interventions encompassing activities not focused on the environment *per se*.** This is consonant with the assumptions of standard economic policy, but contrary to the beliefs of many environmental (certainly to ecocentric) approaches. In some circumstances, sustainable and productive environmental management may be best achieved by ensuring the availability of alternative income and employment, *in situ* or elsewhere, such as to reduce people's dependence on environmental resources (and their need to degrade them in some situations). Progressive change for women may therefore, in some circumstances, imply enhanced involvement in, for example, wage labour or trade, and prioritisation of resources to support such activities (e.g. through credit or marketing schemes) rather than for environmental conservation schemes. In

practical terms this may raise cross-departmental problems within donor agencies, but they should not be insuperable.

8) Resource pricing and cost recovery policies need to be reconsidered and methods of price estimation reviewed in the light of gender inequities in the intra-household distribution of income and in the identification and expression of priorities in household consumption. **Policies need to take account of the likelihood first, that women often have lesser command over cash than men and second, that where men take charge of household expenditure on purchased inputs and services they may not give proper weight to women's interests or priorities.** These factors may imply a need to revise prices, and may affect possibilities of cost recovery. Prices calculated on the fallacious assumption that household income is the appropriate basis on which to estimate resource users' ability to pay may well provoke sub-optimal use of the newly priced resource and/or negative personal welfare effects. The terms of reference for evaluation of pricing policies need to be widely drawn to encompass the possibility that resource pricing may have unanticipated, secondary, negative effects in other areas of household survival and standard of living.

It may be that the consequences of gender differences in this respect are so serious that methods of administering prices and collecting revenues need to be revised, or reliance on the pricing instrument itself needs to be reduced. Cost recovery policies may also need to be drawn more widely, for instance to include measures to assist women (in whatever way) to increase their individual command over cash incomes as a legitimate activity as part of, or integrally linked to, a NRM intervention.

BOXES

Box 1:

Community-based management of water resources: gender relations and participation in the Macina Wells Project, Mali

Community participation has become a buzz word in water supply and sanitation projects. However, it is no panacea. Failure to address gender biases in community organisations can undermine project performance.

The Macina Wells Project was established during the Sahelian drought of 1984-1985 in Macina Circle, Mali. The aim of the project was to improve and extend water and sanitation provision through construction of wells and public health education. Rules for well use were implemented (i.e. closing the well gates and leaving shoes outside), and well water was chlorinated.

A community management approach was adopted with village leaders charged with appointing key personnel to the 'water management teams' set up in participating villages. The majority of people nominated to be well caretakers were older men with authority within the village. They were responsible for opening and closing the wells, for reporting breakdowns and for overseeing well cleaning - a task they allocated to women.

An evaluation undertaken in 1994 found both men's and women's work substandard. The caretakers were seldom found on well sites, well water was not properly chlorinated and pulley systems were worn out and frequently broken. Wells were not cleaned to required standards. Women saw well cleaning as an addition to their already overloaded work schedules, something to be avoided or skirted over. Many women also refused to co-operate with the rules of well use imposed by the men, because they were impractical and illogical: it was 'extremely difficult to balance 55 pounds (25 litres) on one's head while trying to put shoes back on and close the gate at the same time - especially at peak times when well traffic is constant' (Purves and Bamba 1994: 23). At peak times, when the new pulleys were useless because they allowed only one person at a time to draw water, women dismantled the new equipment and reverted to the old system.

Women were given minimal influence over project planning, kept out of key decision-making responsibilities, and excluded from all technical aspects of the project. The allocation to men of high-status tasks was counterproductive. Men lacked any incentive to carry out the work since water provisioning and sanitation were in women's domain. Women may have been more suitable as caretakers because of their regular presence at water points to monitor conditions and their interest in maintaining equipment in good order. But reliance on traditional social institutions and community organisations had precluded such an arrangement.

Gender hierarchies are often expressed through community-level social institutions. Failure to address this issue can lead to low quality participation and poor project performance.

Source: Green and Baden (1994a); Purves and Bamba (1994).

Box 2:

Woodfuel problems in Kakamega, western Kenya: the need for a social institutional perspective

In Kegoye in the Kakamega district of Kenya, an area of high population density, local tree planting schemes have in recent years increased tree cover on small farms. In the midst of this abundance, women face a woodfuel crisis. The woodfuel problem in this area is not one of overall resource availability, but one of gendered access to wood resources. Local institutional arrangements exclude women from holding tenurial rights to land and trees. The woodlots that have been established are of permanent trees, mainly *Eucalyptus saligna,* which have been planted and harvested as cash crops by men who control the proceeds of pole sales. Women are excluded from planting trees because it has customarily been perceived as a means of laying claim to land and women do not hold individual rights to land. Neither do women influence tree siting or management on either farms or woodlots, or hold rights to use tree products. Women's access to communal land to gather fuelwood is also diminishing because of growing land scarcities in the area. Women are nevertheless expected to provide fuelwood for household uses, and are obliged to seek out alternative sources, usually crop residues or small twigs from hedges on household land, or to purchase supplies. There is an obvious mismatch here between gender roles and rights of access to and use of resources.

Male control over trees and their products is consolidated ideologically. Women fear that planting trees will make them infertile, or cause them to lose their husbands, through divorce or death. However, the degree of influence of these ideas varies among households, and may be weakened by education. The absence of husbands through out-migration has also allowed some women scope for bargaining with or paying male kin or hired labour to plant trees on their behalf.

Social constraints have also been overcome in some circumstances in another way. Fast-growing *Sesbania sesban* and *Tithonia diversifolia* species, which are categorised within local taxonomies as shrubs, have been successfully planted by women, by-passing gendered institutional arrangements. Arrangements for control and use of permanent trees do not apply in this case. And men have not attempted to gain control over these trees because of their low value for uses other than fuelwood.

This example shows that the 'environmental problem' in Kegoye stemmed from gender bias in institutional arrangements for access to and management of a natural resource; and that it was possible to work towards a solution within that framework.

Source: Mearns (1995); Chavangi (1987).

ABBREVIATIONS

AFOTEC	International Service for the Support of Training and Technologies in West Africa/Sahel.
CBA	Cost-Benefit Analysis
FAO	Food and Agricultural Organisation
DGCS	Direzione Generale per la Cooperazione allo Sviluppo (Italy)
GAD	Gender and Development
GED	Gender, Environment, Development
GTZ	Deutsche Gesellschaft fur Technische Zusammenarbeit, Germany
ICDP	Integrated Conservation-Development Project
IPM	Integrated Pest Management
IUCN	International Union for Conservation of Nature and Natural Resources
IWRM	Integrated Water Resources Management
NGO	Non-Governmental Organisation
NRM	Natural Resource Management
ODA	Overseas Development Administration (UK)
PALD	Policy Alternatives for Livestock Development
PEC	Primary Environmental Care
PRA	Participatory Rural Appraisal
SIDA	Swedish International Development Assistance
UNCED	United Nations Conference on Environment and Development
UNCHS	United Nations Centre for Human Settlements
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNRISD	United Nations Research Institute for Social Development
USAID	United States Agency for International Development
WED	Women, Environment, Development
WID	Women In Development
WHO	World Health Organisation
WRI	World Resources Institute
WSS	Water Supply and Sanitation
WWF	World Wide Fund for Nature

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